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ORIGINAL COMMUNICATIONS.

THE DANGERS AND THE DUTIES OF THE HOUR.[1]

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Under this somewhat startling caption Dr. William Goodell, one time Professor of Gynecology in the University of Pennsylvania, and one of the pioneers in the investigation of the diseases of women in the United States, made an address nearly thirty years ago in which he dealt with the subject of what is to-day called "race suicide." Goodell was generally recognized as a conservative leader of the profession, and his use of this title was for this reason all the more impressive. I do not claim to possess the judgment of Goodell, but I have, as one of his old students, taken the liberty of borrowing his title for an address which will deal with another topic, far removed from his theme, but nevertheless one to which such a heading may properly be given. It is my wish to present certain views upon the somewhat hackneyed subject of medical teaching, and lest my hearers be overcome with the dread of listening to a dry discussion of the number of hours to be devoted to given subjects in a cut-and-dried curriculum, let me hasten to assure them that no such fears need disturb their rest of mind.

The history of the world, whether we study it as to politics, commerce, scientific pursuits, or religion, reveals the fact that its constant progress is nevertheless marked at times by disturbances which produce in the minds of the conservative a firm belief that everything is "going to the dogs," which results, in some instances, in extraordinary progress, which is more apparent than real, and in retrogressions which to the enthusiast are as prophetic of evil as his views have been indicative of calamity to the mind of the conservative. As time goes by both radical and conservative perceive that after all things are better than before, and just as the forces of nature ultimately result in producing a general standard of life, so do the forces I have referred to produce a certain standard of education and learning which is better than before, in that the radical has forced improvements, although his enthusiastic efforts have been kept within bounds by his more conservative brother who may be fundamentally slow, but who nevertheless exercises a function equivalent to that of the vagus nerve on the heart. In other words, the radical pries his conservative brother out of his rut, and by so doing loses enough of his energy to keep him from rolling the pried one all the way into the gutter. At times the radical succeeds in the last-named effort and the result is disaster; at other times he succeeds only in making the conservative restless and irritable, and the result is beneficial in that he is made to find a new resting-place with better surroundings.

After all this is done, whether it be in politics, in commerce, or in education, the

[1]The address in medicine before the Ohio State Medical Society at Cleveland, May 10, 1911.

people in general, who have a very real interest at stake, become the beneficiaries of the disturbance and sum up for themselves a fairly accurate estimate of exactly where they stand. It is my belief that we have about reached this phase as to education *in* the medical school, if not as to preliminary medical education. We have not reached the ultimate goal, of course, and we never will, for the motto *ad astra* must always be with us, but as we climb the mountain of advancement it is well to rest on a ledge, look around us, and get a clear conception not only of what ought to be done but also what can be done before we proceed.

It will usually be found in every climbing party that those of years and experience hold the younger ones in check, greatly to their annoyance, but often for their ultimate good, and these older ones, not old ones, act in this way not because they are unable to keep up but because experience has taught them caution and given them ability to perceive conditions invisible to younger eyes. To use the words of the politician, they have "their ears close to the ground." Some of my friends will probably be amused to find me trying to belong to the latter class, but, with your permission, I shall endeavor to put forward certain views, and I shall be guilty of the paradox of forthwith plunging headlong into the subject to which this long preamble has led me.

In other words, what is the duty of the general or average physician? The answer is to put himself before and after graduation in such a way as to feel in his heart that he has used all the ability God has given him, and all the knowledge he can acquire, to care for those who come under his control. The knowledge that he can acquire may be properly divided into two parts: scientific knowledge in the sense of learning in all those collateral branches of medicine which indirectly bear upon actual practice, and practical knowledge of how to actually care for and treat an individual who is ill. It cannot be denied that all knowledge is of advantage to its possessor, since its existence broadens the intellect and balances judgment. From the theoretical standpoint, and for that matter from the practical standpoint, a man can never know too much, but the question at issue is how much should he know before he attempts to apply what he has got and by applying it gain more, not only more in the sense of greater knowledge that he can learn from others, but more of that priceless form that can be gained solely by experience. This knowledge is universally recognized as of the greatest value not only by medical men themselves but by the laity, which gladly pays more for experience, whether it be in law or medicine, than it does for book learning.

Now the amount of knowledge which should be possessed by a man who wishes to begin the practice of medicine is governed in practical life by several factors: First, he must know enough of the fundamental departments of medical learning to be qualified to perform his practical work. Secondly, his course of training should be such that he knows how to apply this elementary knowledge, and furthermore possesses a training which permits him to actually treat patients. To illustrate my meaning, a man trained to be a first-rate pharmacologist is of no more use at the bedside as a practical physician than a man who has been trained by a Correspondence School is qualified to run an iron furnace or a rail mill. Thirdly, the time in his education when he should begin practice is governed by the time at which he is old enough to begin the study of medicine, and the time when, if he does not put his hand to the pulse, he will be too old to begin as a practitioner. In other words, I think it may be asserted that no man should begin the study of medicine before he is eighteen, and that he should begin practice not later than twenty-five.

This span of seven years is therefore the space in which all his medical knowledge preparatory to practice must be acquired, and the law has decided at present that four of these years must be in a medical school. Furthermore, every one, who knows anything about it, knows that a

year should be spent in a hospital, and most of the large hospitals demand a term of eighteen months to two years of their internes, because their experience is that it is impossible for an interne to get good experience and give good service in less time. For example, each of the 14 internes at the Jefferson College Hospital serves two years, but has only about two months in each department. Here then is six years out of a possible seven fully utilized even if the student begins on his eighteenth birthday. Lastly, there is another factor to be considered which is one of economical importance, namely, the cost of unproductive study over a term of six or seven years and the amount that the public are willing and able to pay afterward to compensate for this period of unproductive and costly labor.

This last point is one too often lightly regarded in academic discussions of this subject. However blessed is he who can minister to the sick, it is nevertheless a fact that in this workaday world he must earn the wherewithal to live, and his earning power is based upon his practical ability and the wealth of his patients. The reason so large a number of the profession earn a scanty pittance is not that their labor is not worth more, but that the people they care for have not got more to give. In other words, the unfailing law of supply and demand controls the practice of medicine as it controls all other human efforts. Furthermore, this inexorable law is not productive of evil, it is productive of good, for it eliminates the really unfit and better still stimulates the able to increasing effort. Indeed, it may be said that with scarcely an exception every man who has attained eminence in medicine started with such limited financial resources that he can well be said to have started poor.

Again, there is a humane side to be considered. Over very large areas of our country fees cannot be paid for medical attention that is based upon years of study in excess of the six or seven that I have named, yet the people in these areas need good sound medical care, and if they cannot get it for the means at their command will turn to the old woman, the charlatan, and the patent medicine bottle. Pray do not misunderstand my meaning. I forcibly deny that I advocate cheap doctors who are only worth their cheap fees. I forcibly insist that the main object of a medical school designed for teaching general practitioners should be the preparing of their students to meet the exigencies of practical work. In other words, I urge that practical teaching be improved or increased before we attempt to increase or improve teaching in so-called scientific branches. At present the teachers of theory are waging a campaign which is endeavoring to supersede the teachers of practice, and are carving, out of a mass of inexperience, hard and fast curricula which do not meet the needs of the man involved.

This endeavor is based upon the erroneous conception that each undergraduate student is destined to become an original investigator of the laboratory type, instead of a general practitioner of the bedside type whose duties are as far removed from original research as are the duties of the astronomer from those of the captain of a transatlantic liner. The first investigates and makes new observations, while the second employs the results of original investigation. He guides thousands of persons to "the haven where they would be" as the result of old investigations and ordinary observations. The astronomer should not waste his time in studying practical navigation, and the ship captain should not, as a rule, attempt to be a great astronomer, but be an observer of the stars for the sake of utility. Each has his function, but the training of one does not fit the other for his task.

If we turn to pharmacology and therapeutics we find that to-day materia medica, as it used to be called, is practically no longer taught. Thirty years ago each of us had to learn that kino was the inspissated juice of the *Pterocarpus marsupium*. In place of such useless material, however, we are informed that the medical man should be a trained pharmacologist before

he becomes a practitioner, and that a larger number of hours should be set aside for pharmacology than for practical therapeutic training. Even if this is done, however, the course is inadequate to make a man a pharmacologist of the crudest type, and the experiments performed have no bearing upon many of the chief methods in modern therapy, many of which rest on empiricism. At one of the oldest and best medical schools of the United States during the present year I am informed that no less than 200 dogs have been used in an endeavor to teach students pharmacology, and 20 rabbits had the superior cervical ganglion severed in order that the effect of cocaine on the eye on the two sides might be compared. Of what possible advantage is this to the man that expects to *practice* medicine in any department of his art. The hours so spent are wasted. They are wasted because they give no practical results, because they crowd out opportunities for gaining practical experience, and because they do not develop pharmacologists or original investigators.

A pharmacologist can only become such after months of careful laboratory and postgraduate training, and an original investigator is so rarely met with that it is safe to say that not one is to be found in every 500 men who properly graduate as qualified practitioners.

An original investigator is born, not artificially produced, as the artist is born and not made. Experimentation is the last field in which the young general practitioner has a right to wander. It is his duty to follow beaten paths, not to try new routes, and for years after he begins his life-work he will find all his time taken up with improving his practical knowledge of well-known paths by study of medical literature and the study of his cases. Furthermore, the type of mind which develops into that of the successful practitioner is not the type that develops into the original investigator. To use the words of President Eliot of Harvard: "Investigators in any science need an unusual perspicacity or clear-sightedness in regard to its theories; they need, each in his own field, a full knowledge of the work already done, and a clear perception of the bearings of the most recent discoveries." Of these essentials to success how many has the undergraduate medical student?

The average general practitioner is not and should not be a laboratory investigator. The practitioner must follow the smooth highway already made safe and sure by the pioneer, and the hosts that have followed him. Yet at the present time the enthusiastic investigator, often possessed of more ambition than ability, to find new light, is endeavoring not only to advocate research for the student but to form combinations to enforce his views—combinations as oblivious of the views and rights of others as are some of the combinations to which that now opprobious term "trust" is applied. Bearing the banner labeled "reform" they assert that their proposals are for the betterment of medical men, and more important still, betterment of their patients. Practically without exception these well-intentioned members of our guild, whose actual experience as to practice is *nil* and whose laboratory experience is rarely in excess of ten years of teaching, attempt to instruct the practical teacher as to what he shall do and demand that hours devoted to practice be devoted to the laboratory. They wish the student to get all his practical training after, not before, he gets his degree, and in an endeavor to make all things fit their so-called scientific views they seek to establish cast-iron curricula which are as far removed from accuracy and practical fact as possible. Thus, one of the greatest pharmacologists of to-day in his classifications of remedies places antitoxin and castor oil in the class of "Ferments, Secretions, and Toxalbumins," and another places remedies designed to expel worms under the head of "Intestinal Irritants." Of what practical value is such an arrangement to the man who is called upon to treat diphtheria or a case of tapeworm? Such methods substitute the artificial for the real.

In no department of medicine is this ten-

dency more notable than in Therapeutics, a department in which I have taught more than twenty-five years. It has become a custom in some instances to place in charge of the chair which bears the title of "Therapeutics" men who are not clinicians but who pride themselves upon being experimental pharmacologists. Often they have not had any bedside experience to qualify them for the consideration of practical therapeutic problems, and not uncommonly they are physiologists and chemists rather than medical men. Their wish to make therapeutics an exact science is laudable but too Utopian to be attained, for in all time the never-ceasing variations in the body in health and disease will require the art of experience as well as scientific fact.

In this connection I have read with much interest remarks made by Sir Clifford Allbutt, Regius Professor of Physic in the University of Cambridge, before the Therapeutical and Pharmacological Section of the Royal Society of Medicine of London. There is no medical writer who can place facts before his readers with greater charm and accuracy than Sir Clifford, and what he has to say always bears the marks of sound reasoning. He points out that the pharmacologist is one whose attention is concentrated upon a more or less abstract form of thinking about therapeutics instead of that of the practical man of medicine.

Sir Clifford then points out that students entering a pharmacological laboratory, thinking that they are going to obtain therefrom practical maxims or rules which will guide them in their work as physicians, will find themselves disappointed. It is not, in Sir Clifford's opinion, a practical way of developing their resources to lead them to expect immediately practical results from the researches carried out in the laboratory away from the bedside. On the contrary, Sir Clifford believes that the practical man must be, as he always has been, very much in advance of the researcher, and that while pharmacologists have thrown valuable light on some practical methods, most of these methods in themselves were known before the researches were carried out.

It is true that laboratories are necessary and science is essential, but therapeutics is not a science, or not science only, but an applied art, and in his opinion it may be a long time before science will "catch up" and come definitely to our assistance. In the meantime it is essential for the physician to meet the incessant contingencies of clinical experience, and in one sense clinicians are like pioneers or adventurers who must open up unsurveyed districts, breaking their way through the wilds as well as they can, although ultimately the pharmacologist is expected to note the various features of the region and lay out its road. But as Sir Clifford points out, it would have been a poor thing for geography if adventurers had waited for the cartographers.

A student must not be impressed with the idea that all therapeutic measures are valueless unless they cannot be explained by pharmacology. On the contrary, he should be assured that apart from scientific laws and pharmacological proof he is entering into a great inheritance of empirical knowledge of infinite service, that will often prove of crucial efficiency and not rarely turn death into life. He should be assured that certain facts are the result of clinical experience even if they cannot be scientifically explained.

In other words, to use Sir Clifford's expression, it would seem that "the pharmacologist at the present day should be the follower, not the leader." We should endeavor to make medical students not merely trained men of science, but that which is the end of their being, namely, good clinical therapeutists.

Let me bring forward a few points in support of the view that pharmacology is not as yet sufficiently far advanced to permit us, as clinicians, to depend largely upon it. Clinical therapeutics and pharmacology must, it is true, go hand in hand, but pharmacology is not yet sufficiently complete to enable it to act as a foundation upon which the practical application of all drugs may be built. Unfortunately, some of the pharma-

cologists, largely because of their lack of clinical experience, have actually had the temerity to adversely criticize measures which long years of experience have proved to be valuable.

Amongst the methods of practice often resorted to by physicians, which the so-called ultra-scientific man attempts to criticize, with, we must admit, some show of reason, is the ancient method of relieving pain and congestion by means of counter-irritation. There can be no doubt that in many instances our knowledge of anatomy would seem to indicate that there is absolutely no direct nervous or circulatory connection between that part of the body to which the counter-irritation is applied and that part in which the supposed lesion or pain exists. But there is much evidence to indicate that there is anastomosis or connection, vascular and nervous, between widely separated portions of the body, and there is also evidence that as yet we know very little concerning these anastomoses of function if not of actual anatomical relationship.

Those who tend to criticize counter-irritation express the belief that the application of counter-irritation over the epigastrium, or other portions of the body, cannot be expected to exercise any material influence upon the abdominal viscera, which, in one sense, have no direct anatomical connection with the abdominal wall, yet it is a well-known clinical fact that in gastric ulcer there not infrequently develops in the skin of the epigastrium a small and well-localized patch of hyperesthesia which is quite characteristic of the deep-seated lesion which exists beneath it. If, therefore, an ulcer of the stomach can produce excessive functional activity in the sensory nerves of the skin of the abdominal wall, it would seem reasonable to suppose that counter-irritation applied to this area may materially influence a deeply seated area. Certain physicians who are regarded as hydrotherapeutic enthusiasts have claimed that the application of cold to the perineum is sometimes effective in the control of pulmonary hemorrhage. We are not prepared to assert that this is true, but the mere fact that there does not seem to be any adequate explanation for it does not prove its incorrectness.

At first sight it would seem improbable that irritation, in one form or another, of the breast would have any direct or indirect influence upon the uterine muscle, yet women who have recently gone through the act of parturition will frequently assert that the application of the infant to the breast at once produces uterine contractions, which in some instances are almost as painful as those which resulted in the expulsion of the child. In connection, too, with the development of areas of tenderness on the surface of the body due to deep-seated lesions, it is interesting to note the statement of Dr. James Mackenzie in the issue of *Heart*, vol. ii, No. 1, in which he points out that he has constantly observed, in some forms of heart failure, that the superficial tissues in certain regions become tender on pressure; and further on, that he found a distinct relation between the degree of heart failure and the extent and severity of the hyperesthesia of the skin, muscle, mammary gland, and other tissues in the external body wall. Indeed, he goes so far as to state that the first sign of improvement in the patient's condition is nearly always the diminution in the tenderness of these areas, and that the most frequent sites for their manifestations are beneath the left breast, in the breast itself, in the pectoralis major muscle, where it forms the anterior wall of the axilla, in the sternomastoid and trapezius muscles on the left side and in the skin covering them. So, too, he asserts that when the liver is enlarged a similar hyperalgesia of the tissues on the external body wall covering this organ takes place. Along these lines, concerning the relationship of deep-seated lesions and superficial areas of hyperesthesia and anesthesia, the most promising work has of course been done by Head in England, yet thorough and complete as his investigations have been, it seems probable that they are but the be-

ginning of our knowledge concerning these important subjects.

In other words, there are innumerable illustrations of the fact that the clinical therapeutist often gets results by means, or methods, which are based upon empirical observation without being able to bring forward an exact explanation of how they do good. For the time being we must be content to let his knowledge rest upon his results, and hope that future investigation will explain in a scientific manner the processes in the body which are involved when he resorts to a well-tried and successful plan of treatment.

About a year ago a Professor of Pharmacology in one of our American schools published a paper in which he endeavored to show that certain procedures in addition to those named and commonly resorted to are futile. Thus, for example, he stated that chloride of ammonium, terpine hydrate, and benzoic acid have no expectorant effect in the sense of possessing the power to increase the secretions of "the pulmonary mucous membrane." The carping critic might point out that in this instance the pharmacologist is ignorant of his anatomy, since it is the bronchial tubes which possess mucous membranes, and not the pulmonary tissues, strictly speaking; but with this point we do not care to deal. The fact remains that chloride of ammonium in particular, and terpine hydrate, benzoic acid and its salts, are universally employed by competent practitioners as expectorants, and that following their use the quantity of muco-pus coughed up by the patient is for a time materially increased. It is brought up more easily, the patient rapidly improves, and is cured at a much earlier period than if these remedies were not used. The argument, therefore, that the chloride of ammonium is completely absorbed, taken into the portal circulation and there quickly decomposed, and that it is ultimately eliminated as urea and partly as reformed ammonium chloride, and that it does not get to the bronchial mucous membrane as ammonium chloride, does not prove that the administration of the remedy is futile. The argument of the pharmacologist may seem correct, but his deductions are erroneous because even if his process of reasoning is perfect, the facts are incontrovertible. His argument only justifies the statement that chloride of ammonium does not act directly upon the mucous membrane of the bronchial tubes as chloride of ammonium, and it does not justify him in making the statement that the remedy is not an expectorant.

So, too, he stated that the use of sweet spirits (*sic*) of nitre as a diuretic and diaphoretic is a fetish, and regretted that he is forced to "destroy this pretty little harmless delusion." Incidentally it may be stated that it is not "spirits" of nitre but "spirit" of nitre. He then proceeds to state that when sweet spirits (*sic*) of nitre is mixed with water before it is swallowed the nitre escapes and the only effect left is that of a very small amount of ether and alcohol which is negligible. This statement is made in face of the fact that within the last few years it has been repeatedly found by the clinician at the bedside that the sweet spirit of nitre lowers blood-pressure, just as does nitroglycerin, and that this lowering of blood-pressure is not imaginary but can be estimated by instruments of precision. Furthermore, if this pharmacological recluse will, under proper conditions, take a dose of real sweet spirit of nitre, he will sweat more than if he did not take it, and if he repeats this experiment under proper conditions he will have diuresis to a greater extent than if he did not take it. Further, this theorist states that calomel acts as a purgative by its action on the intestine, does not increase biliary flow, and that the bilious purging is due to the fact that the bile is hurried through the bowel. He bases his assertions upon the well-known experiments which have been carried out by a number of medical men in patients who have suffered from biliary fistula. There is no question whatever that in these experiments the administration of calomel has not caused an increased flow of bile through the fistula, but this does not prove

that calomel does not cause an increased flow of bile into the intestine. It may not stimulate the liver, but may have some action on the gall-bladder whereby that viscus is emptied. But whatever may be the modus operandi, it may be asserted that if he will take a saline purge, thereby sweeping the contents of the duodenum out of the bowel, estimate the quantity of bile passed, and some days later will take a full dose of calomel, or blue mass, and estimate the quantity of bile passed, he will find that, however clever his mental deductions may seem to be, his biliary excretion will be increased more by the calomel than by the saline. After five or six copious biliary dejections have occurred the lower end of the alimentary canal will convince his brain that it is in error when it thinks that calomel does not increase the flow of bile. So, too, he asserts that the use of nitrohydrochloric acid has no more influence upon the liver and its associated functions than any ordinary acid. Here again, if he will take full doses of sulphuric or hydrochloric acid on different occasions, and then for some days take full doses of nitrohydrochloric acid, he will find, in many instances, that bilious purging is induced. Many practitioners get results in hepatic disorders from the use of this acid that other acids fail to produce. So, we repeat, it is the business of the critic not to condemn the practice of the man who knows by experience, when the condemnation is based solely upon what the critic thinks about it and not on what he knows about it.

With the statement that "colchicum does not cure gout" it seems hardly worth while to deal. We may not know how it cures gout because the pathologist at the present time cannot tell us what gout is, but there are thousands of medical men and thousands of laymen as well who know that colchicum does cure gout, or, to speak more correctly, relieves an attack of gout, although it may not permanently correct the metabolic disorder. Facts also contradict his statement that chlorate of potash is useless in stomatitis. The manner of its action may not be properly explained by those who employ it, but the fact that it cures the condition is incontrovertible.

Laboratory investigators are continually publishing results which contradict one another. Their constancy in this respect is quite equal to that of the general practitioner. Thus, for example, we find that for years past the laboratory worker has been asserting that alcohol never acts as a stimulant to the circulation, but always as a depressant, and that its employment on the part of medical men and laymen as a stimulant is utter nonsense. Now, we have published in the *Journal of the American Medical Association* of July 30, 1910, a very clever research by Brooks of Chicago, in which he points out that practically all the studies heretofore made upon the physiological action of alcohol have been impaired in value by the preliminary use of some anesthetic or by mutilation of the animal, and he describes the methods which he employed by which such factors were eliminated. He publishes a chart showing a very definite and pronounced rise in blood-pressure with an increase in the amplitude of the pulse. He believes as the result of his investigations that the dominant effect of alcohol, when circulating in the blood-stream, is to cause a gradually progressive lowering of blood-pressure, but it is evident that the primary effect is directly stimulant. The pharmacologist seems to have proved, beyond all doubt, that alcohol, given to animals, acts first, last, and all the time as a depressant. The clinician has seemed to prove by bedside experience that in certain cases of disease, in which a depressant is contraindicated, it is a valuable remedy. Yet some clinicians have lost faith in teachings based on hundreds of years of experience because a handful of experimenters tell us that alcohol in dogs is not a stimulant. I, for one, don't believe it is a stimulant in the elementary sense of the word, but I know it does good when vitality is ebbing in low fevers and sepsis, that it restores circulatory equilibrium, probably increases bacteriolysis, and being burnt up in the system

gives force to the body. Studies as to the effect of alcohol in disease cannot, except indirectly, be based upon its effects in health. In prolonged fevers alcohol is burnt up and protects the tissues. In health it is something over and above that which is needed in the metabolic processes. If we add fuel to a dying fire we bring it up. If we add fuel to one which already has all it can burn, we "baffle" it and impair combustion.

An article like that which I have quoted, in which calomel, spirit of nitre, and ammonium chloride were condemned, may do good by forcing the practitioner to regard all his therapeutic measures as worthy of careful analysis and study, but it does harm in that it leads the bedside clinician to the belief that those who are working in pharmacology do not know what they are talking about, and so diminishes his respect for a class of investigators who should be encouraged and who as a class are to be regarded with the greatest confidence. So, too, a publication of this kind generates a feeling of annoyance, the generation of which may not be harmful and which to the author may be amusing, but this feeling of annoyance has very much the same basis for its existence as has the feeling of annoyance which develops when John Jones meeting James Smith at the corner of the street coolly proceeds to assure the latter that he is not where he knows he is. James Smith would at once believe that John Jones was insane, or use a more descriptive phrase.

In the way of refreshing contrast we quote from an article contributed to the *Boston Medical and Surgical Journal* of July 28, 1910, by Tyrode, who is at once a clinician and a pharmacologist. He says: "In spite of the efforts of cranks on psychotherapy, dietetics, and physical therapeutics to abolish the use of drugs or belittle their advantage in the treatment of disease, these therapeutic agents have persisted and are still flourishing after the late passing period of therapeutic nihilism. This is very encouraging, because unquestionably great good is being done every day by the proper use of drugs." And again he says: "It is unnecessary to defend the rights and accomplishments of drugs in modern therapeutics because the results obtained speak glowingly for themselves."

It is worth noting that the most eminent pharmacologists to-day recognize the wide space which exists between the study of physiological action and practical therapeutics. He who is perhaps the most eminent of them all in the English-speaking world (Cushny), has repeatedly, within the last few years, showed that he sees in the problems of the bedside an attraction with which the accuracy of the laboratory cannot compete, so that he is now devoting his time not so much to the study of the action of a drug on the dog as to applying the knowledge already gained to needs of man. He has served his day well in that he has emphasized the wide differences in degree and even in kind of result in these fields of research, and he struck the true note when he said in his recent Harvey lecture that "great caution must be used in applying the results obtained experimentally in therapeutics," the reason being not only that the dog is not a man, but that the effects on a healthy organism are not always produced in the presence of disease. Toward the close of his address are to be found these significant words:

"In animal experiments, one of the characteristic effects of digitalis medication is the rise of blood-pressure, which arises in part from the heart action, in part from a constriction of the arterioles. In patients the blood-pressure is rarely augmented by digitalis, and may in fact fall, as the general improvement sets in. This is, I think, due to the much greater efficiency of the vasomotor mechanism in man, which has been developed to permit of his assuming the erect attitude." And again:

"In the course of this investigation I have been struck by the small amount of accurate knowledge that we possess as to practical therapeutics. My experience has

been almost exclusively in the laboratory, and perhaps I have expected too high a standard in the clinic, but in this field of cardiac tonics alone I see an endless vista of questions to be solved in the clinic if only accurate observations are available. There seems to me to be no field in which painstaking work is more required and in which the prospects of success are more promising than in clinical therapeutics. I would commend the cultivation of this study to any one who wishes to add to the general store of medical knowledge, and at the same time to devote himself to some line of work which will bear upon his own future work. But we have enough of inaccurate therapeutics already; what is needed is not a statistical compilation, but an accurate study of each individual case and a careful and, if you will, an experimental investigation of each feature presented."

There is no man living in the English-speaking world to-day who has done so much to advance our ideas as to diseases of the heart and as to the accurate measures for their treatment as James Mackenzie, of London, with whom no less a pharmacologist than Cushny has thought it a privilege to be associated as a fellow worker. Possessing that gift of original investigation that has so often brought the man far removed from the advantages of postgraduate laboratory work to the very forefront of his profession, and at first practicing general medicine far from the scientific atmosphere of a great city, he has taught us more about the action of cardiac remedies in man than any one living, and has established a school of investigation such as always develops about the accurate worker in a new field. Fully appreciating and constantly using and devising instruments of precision for his work, fully acquainted with what animal experimentation has given us and will give us, and delivering the Oliver-Sharpey Lectures at the Royal College of Physicians in London on "Heart Failure," he has this to say of the difficulties of the well-trained youngster who has not even been busied with the work of the laboratory but who has had months of training at the bedside:

"Let us consider how the average medical practitioner acquires his ideas of heart failure. A young fellow has passed all his examinations and may have had some hospital experience as a house physician. He passes into general practice, and is surprised to find that diseases present very different aspects from what he expected. During his hospital experience he has seen many patients seriously ill from heart failure. In some murmurs have been detected, and the valve lesions have been regarded as the cause of the heart failure. The patients have died and the diagnoses have been verified, for the suspected valves have been found thick and shrunken, and the cause of death has been duly certified as disease of the valves. The manner in which heart failure has been brought about has been explained to him—the systolic murmur indicated incompetence of the mitral valve, the leak from the left ventricle had distended and embarrassed the left auricle, stasis in the lungs, with subsequent embarrassment of the right ventricle, had been produced, and this again had been followed by dilatation of the right ventricle, with consequent tricuspid regurgitation, irregularity of the heart's action, embarrassment and dilatation of the right auricle, back pressure into the veins, followed by dropsy and enlargement of the liver. This view has presented such a simple and intelligible explanation that he never dreamt of calling it into question."

If this represents the difficulties of the man well trained in the hospital, what are the pitfalls of the unfortunate fellow who has had precious opportunities of clinical observation displaced by learning how to use kymographs, oncometers, and zeitschreibers in the laboratory in his student days, when, as already pointed out, the time does not suffice to give him even a smattering of them? If the pharmacological laboratory is designed to make him think, the same end can be attained in the hospital ward.

But it is not alone in Therapeutics and

Pharmacology that the endeavor to be ultra-scientific holds sway. In other departments of medical teaching we find the theoretical enthusiast trying to force his views upon his more experienced brother. We find an endeavor being made to force all to a common level or established system in which the brilliant and stupid teacher and student are thrown together as if they were inanimate, not animate, things. Some standard there must be, of course, but this should be an average standard. It will have to be adjusted for the school that has no hospital of its own and for the school that possesses such opportunities for teaching. Many of the schools in which pharmacological laboratory work is placed on a pinnacle put it there to cast a shade over the vacant spot where there should be a hospital. The student must be taught and taught well, but what shall be taught, how he shall be taught, and when he shall be taught is to be decided by the teacher as an individual and not as the part of a machine carrying out a fixed plan.

The action of almost all the important drugs can be better taught at the bedside than by laboratory courses in which the student himself makes actual experiments, notably digitalis, belladonna, aconite, the nitrites, the saline purges, and the diuretics; and what course in a pharmacological laboratory can teach the student the use of quinine or the action of calomel? Indeed, the latter drug is the opprobrium of the pharmacologist and the blessing of the practitioner and patient, every experiment made away from the bedside having utterly failed to inform us how it acts or why it does so much good.

The principle I would like to advance is that the student should be taught the physiological action of drugs, in all those cases in which their physiological action is known, not by half-baked, incompetent experiments made by himself, and that his interest in the physiological action of drugs should be stimulated by showing him that the physiological action makes clear and intelligent the practical use of remedies. If any hours can be found in the medical curriculum for laboratory work in pharmacology, those hours should be taken for bedside therapeutics, in which course the effects of vasoconstrictors and dilators, cardiac stimulants and sedatives can now be accurately studied by the aid of instruments of precision.

In close association with this point is the question as to how many drugs should be brought before the student's attention while he is an undergraduate. At present I am free to admit that I have to teach him a large number of drugs and a larger number of preparations of drugs than he will ever use, or ought to ever use, because only the "lieber Gott" knows what some enthusiastic examiner in a State Medical Examining Board will ask him. Some of these questions are useless, and absurd. In my own State the student has a separate examiner in therapeutics and materia medica. One question was, "What is the dose of santonin for a child of six months with roundworm?" How often does a child of six months have roundworm? As well ask the question, "What is the treatment for pyosalpinx at the age of two weeks?" I have known students who could tell the examiner that acetanilide is eliminated as para-amido-phenol sulphate, but did not know how to prescribe for a patient with diarrhea.

It is a fortunate sign of the times that the error of requiring every student to know a little of all drugs is being replaced with a recognition that he should know much of a few, and I cordially indorse the resolutions presented at the last meeting of the Association of American Medical Colleges, which were as follows:

Whereas, The time devoted to the study of pharmacology, materia medica, and therapeutics is necessarily limited; and

Whereas, The thorough knowledge of a small but representative group of medicaments is conducive to scientific progress in therapeutics; therefore, be it

Resolved, That the Association of American Colleges commends to the attention of medical educators and examiners the limited materia medica lists published by the joint committee of

the Council on Medical Education and of the National Confederation of State Medical Examining and Licensing Boards, and the Chicago Medical Society.

Resolved, That the association urge on the colleges and the examining boards the necessity for the recognition of the principle underlying these lists, and for the early adoption by the boards of a materia medica list to which licensure examinations shall largely be confined.

The way to teach the practitioner-to-be is to lay down in well-developed form his elementary studies, and then, in the last two years of his course, to keep the practical application of this fundamental teaching always before him, so that the surgeon not only tells what to do but explains that what is done is based upon the anatomy of the part, the physiology of the part, and the pathology of the part. So, too, the teacher of clinical medicine and therapeutics can explain that the use of a drug in disease is not based on empiricism but because a given condition is to be corrected by the known effect of a remedy upon a given organ or set of organs. The man taught not only then learns how to treat a patient intelligently, but he is taught to think. The student who has a smattering of pharmacology as he can get it in the laboratory is nothing more than a poor mechanician, who soon finds that the knowledge of the effects of a poisonous drug on a frog is of no service when it comes to the effects of a therapeutic dose upon a man.

It may not be out of place for me to briefly detail what I believe to be the ideal course in a medical school for the preparation of a practitioner so far as treatment is concerned. In the first year he should have sufficient instruction in materia medica to familiarize him with the names of drugs and their useful preparations.

2. He should be taught doses and poisons and their antidotes.

3. He should make in the pharmacy laboratory with his own hands at least one representative of every type of official preparation, and have practical instruction in incompatibilities.

In the third year he should be taught the physiological action of drugs, and no sooner is the physiological action of a drug clearly described, and if need be, illustrated, than the practical application of this physiological action should be impressed upon his memory by the description of cases in which it will be clear how the drug brings relief. In the past the physiological action of drugs, or so-called pharmacology, has been divorced from practical therapeutics, so that even the graduate student has had difficulty in discovering that there is any actual relationship between these two departments of medical teaching. To describe to a student how the nitrites cause a fall of blood-pressure without describing to him as vividly as possible how this action relieves the agony of certain cases of angina pectoris is to miss the opportunity of leaving a lasting impression on his mind, and hundreds of other illustrations of this nature might be adduced. In this third year, too, the official names, the doses, and the antidotes of various preparations are once more studied.

During the fourth year the student hears 14 lectures dealing with remedial measures other than drugs, as, for example, hydrotherapy, antitoxins and vaccines, glandular therapy, the use of heat and cold, counter-irritation, bloodletting and similar procedures, and throughout the entire year receives instruction in practical prescription-writing for hypothetical cases whereby he is taught not only the construction of prescriptions as to form and dose, but gains additional therapeutic knowledge. This work is given to the class in sections by a demonstrator. There are also 16 therapeutic conferences held by an assistant professor. The students are told that at the next meeting they will be quizzed upon the therapy of a certain class of diseases, and will be expected to write prescriptions on the blackboard for such conditions, which prescriptions will be criticized for the benefit of the class from the standpoint of construction, pharmacy, chemistry, physiological action, therapeutics, and practical utility. During the third and fourth years also the

students attend thirty general medical and therapeutic clinics, in which the treatment of disease is largely emphasized, and care is taken to point out not only the bearing of the physiological action of a remedy upon morbid processes, but the student is shown pathological specimens which are designed not only to teach him what can be done but equally what cannot be done by drugs. Thus, a lung riddled with cavities teaches him that tuberculosis cannot be cured by expectorants, and a cirrhotic liver, far advanced in its process, impresses him with the idea that it is useless to disorder the patient's stomach by impotent medicines.

It is clear that in every well-equipped medical school students should be well taught to hold in the highest honor pharmacological investigation, and opportunity should be offered those who so desire to delve into this mine of knowledge. They should also be taught, as we have already said, that empirical methods should always be regarded with a certain amount of distrust, at least to such a degree that they will be forced to study them rather than to resort to them haphazard. Again, the physician should have a sufficient knowledge of chemistry and of the physiological action of drugs to prevent him from believing many of the seemingly attractive advertisements of the drug purveyor—at least until he has analyzed their character. Last of all, he must be assured that many of our most successful therapeutic measures rest upon empiricism at the present time, not only because the pharmacologist has not as yet "caught up," as Sir Clifford puts it, but also because physiologists, pathologists, and bacteriologists have not as yet advanced their departments sufficiently to enable us to explain the action of certain remedies. Indeed, as I have said on other occasions, one of the most remarkable things in medicine is the discovery of a multitude of invaluable means of treating disease, not by scientific research or deduction, but by a process of clinical experimentation and observation.

Experience shows that the laboratory pharmacologist when he is taken ill turns his back upon his theories and incontinently and voraciously swallows such expectorants or purgatives, or other medicines, as the lowly general practitioner may see fit to prescribe, because illness convinces him of the value of bedside experience, and his confidence is well placed, for he gets well. As the writer was a pharmacologist for some years before he became a bedside clinician, he has seen both sides of the shield, one in the laboratory and the other at the bedside. He is, on the one hand, an ardent supporter of pharmacological investigation, and on the other he has a wholesome respect for the results of clinical experience. It were better if some of the pharmacologists of the day would strive to be upbuilders rather than iconoclasts, since by this means they would more successfully advance scientific medicine, and what they had to say would be listened to with greater respect. The average man wants to be shown how he can improve, not how mistaken he is.

The present time is one in which the pharmacologist should not cast discredit upon empirical therapeutics, and the clinical physician should not cast discredit upon experimental pharmacology. Each should support the other, and regard the results of each with respect and admiration, but nevertheless bedside therapeutics for the average medical student should take the foremost place, and pharmacological research should be considered as of secondary importance. Even if the time should arrive when all our therapeutic measures have a pharmacological foundation and every student has a clear conception of the scientific status of drugs, the man of bedside experience will still possess a priceless advantage which will make him of infinite value to all his clients, because he will have come to recognize that disease does not follow hard and fast lines of science, but varies in its manifestations as to the effect of drugs, according to the systemic peculiarities of the individual who may be ill.

AN AID TO THE LOCALIZATION OF METALLIC FOREIGN BODIES.

BY S. W. MOORHEAD, M.D.,
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The difficulty often experienced in removing foreign bodies, such as bullets, needles, etc., from the human body, even though they be comparatively close to the surface, is a matter of common knowledge. Unless such objects can be distinctly felt the majority of surgeons are unwilling to attempt their removal unless the diagnosis has been established beyond doubt and the position of the body indicated by the *x*-ray. The difficulty even then in effecting their removal is not small, and numerous attempts have resulted in failure even after such localization.

X-ray of fragment of needle in hand, showing also the head end of a pin placed on the surface of the palm for purposes of localization.

The chief reason for this lies in the invisibility of surface markings in the radiograph. The needle or other piece of metal and the underlying bones are clearly depicted, and it would seem a simple matter to cut down over the bone or joint indicated and remove the offending particle, especially if views have been taken in two planes, but in operating considerable difficulty is almost always encountered. If the foreign body is in the palm, as is usually the case with needles, it is almost impossible to define exactly the boundaries of the different bones, so that accurate localization, so necessary in order to avoid mutilation of tissue through extensive dissection, is difficult to attain. Furthermore, if the needle is located in the thenar eminence, movements of the thumb may make a difference of as much as half an inch in the position of the needle in reference to the remainder of the hand.

The desirability of having some surface landmark that will be visible in the radiograph is therefore evident. Such a landmark can be conveniently provided by placing some opaque article in a known position on the skin over the point where the

foreign body is supposed to be. For this purpose pins have been found very satisfactory, the distinctive head obviating any possibility of confusion when the foreign body is a needle. If a wound of entrance is present the head of the pin may conveniently be placed at this point. Otherwise it may be placed at the junction of two of the lines of the palm, or at a point marked with nitrate of silver, displacement being guarded against by fastening it in the desired position with adhesive plaster. In cases in which foreign bodies have been recently introduced it is well to place the part on a splint to guard against the migration of the fragment during the interval between the taking of the *x*-ray and the operation.

For the localization of foreign bodies some distance from the surface it is advisable to use two or more pins, placing them on both sides of the limb. Each pin should be given a distinctive shape and be placed on a silver stain of similar design that there may be no doubt in regard to the particular pin indicated by a radiographic shadow.

1523 PINE STREET.

THE TRAUMATIC NEUROSES.*

BY JULIUS L. SALINGER, M.D.,
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The term "traumatic neuroses" was first employed by Oppenheim to designate a variety of nervous affection developing after injury, for which no anatomical lesion could be demonstrated in the nervous tissue. The term was the evolution of the study of Erichsen's "railway spine"—a misleading name, designed to express a clinical condition resulting from accidents and injuries happening to travelers upon railroads and the like.

The discussion and dispute which followed Erichsen's publications regarding the pathology and pathogenesis of railway spine and railway brain is now history, but the final conclusion has not yet been reached, and the "merry war" goes on. There are authors who maintain that traumatic neurosis is a disease *sui generis*, that it is a clinical entity, and still others that the affection is nothing but neurasthenia, hysteria, hypochondriasis, or combinations of these maladies.

That an organic change may be produced in the nervous system, the central organs, or the peripheral nerves by the immediate effect of physical force is self-evident and requires no elucidation. This we recognize by the arrest of function, by paralysis, by disturbance of nutrition and sensation. However, there are quite a number of morbid phenomena relating to the nervous system in which no lesion of the nerve substance can be detected, even with the aid of our most refined methods of investigation. Here we assume that trauma immediately or mediately has produced an alteration of the normal function provided other etiologic factors can be excluded.

The force need not be applied to the central organs, but may affect any region of the body; these are facts that have been gathered by experience. Nor is there any necessary ratio between the amount of force and the nervous manifestations produced. A crush of the leg may give rise to no, or merely insignificant, nervous symptoms; a slight scratch may produce intense hysteroneurasthenic phenomena.

The demonstration of the intimate connection between a peripheral injury and a nervous affection is frequently extremely difficult. In the investigation of this proof various factors appear which render the decision even more perplexing. For instance, the questions arise, Are the resulting symptoms on the part of the nervous system due singly and alone to the injury or are other factors the cause, or is there a predisposing element? Was the nervous

*Read by invitation before the Southeast Branch of the Philadelphia County Medical Society, March 17, 1911.

system normal prior to the effect of the trauma, or did these symptoms preëxist unnoticed by the patient and require but a feeble mechanical insult to produce serious nervous phenomena?

It is undoubted that severe symptoms arising after a slight trauma can be explained only by an abnormal faculty of reaction, a decreased resistance of the nervous system to external influences.

This "Minderwerthigkeit," as expressed so aptly by the Germans, is due to a predisposition, congenital or acquired. When congenital it is known as a hereditary neuropathic predisposition; when acquired it is due to various noxæ, to intoxication from alcohol, tobacco, lead, mercury, and to infections, principally syphilis.

The hereditary transmission of nervous disease, while still far remote from a satisfactory explanation, is an undoubted fact from the present stand of science. Here again alcohol and syphilis play an important rôle by producing a degenerative change in the descendants, rendering them less capable of resistance to external influences and more prone to reactions disproportionate to their intensity. Many authorities point out the fact that frequently the symptoms of a neurological affection have existed prior to the accident, a fact proven by the critical analysis of statistics, including thousands of claims for indemnity.

Saenger[1] investigated 119 cases, taking his material from the laboring classes of Hamburg, Germany, in order to determine the presence of nervous symptoms among them; his conclusions were that such phenomena in the main were to be ascribed to chronic alcoholism. Saenger's material was composed of cases that had never been associated with accident or trauma; the persons were of different ages. He found concentric limitation of the field of vision in 6.7 per cent of the cases. The author states further that this sign is frequently present in chronic alcoholism and in other intoxications, but that it is of no pathognomonic importance in traumatic neurosis, as is claimed by some authors.

In four per cent of the cases he noted anesthesias, particularly hypalgesia of the extremities, in the dorsolumbar region hyperesthesia, and in the chin decreased sensation. These phenomena are therefore not of pathognomonic value as indications of traumatism, as they are occasionally found in perfectly normal individuals. In one case he even found symptoms of a conspicuous hysterical character, which could be ascribed only to immoderate indulgence in alcohol. Increase of the tendon reflexes, frequently noted in his cases, he ascribed to muscle exhaustion —a view that is shared by Sternberg[2] and Brissand. These authors further emphasize the fact that in chronic alcoholism the tendon reflexes are increased. Saenger has found symptoms analogous to those present in the functional neuroses after accidents in alcoholics.

Dumstrey[3] states: "I am of the opinion that not merely traumatic neuralgia but many traumatic neuroses are due singly and alone to alcoholism, that their cure can be brought about only by total abstinence, but that under such a circumstance many unfortunates will be entirely cured." Although this view is too extreme there can be no doubt that the effects of alcoholism have a devastating action upon the organs of the body, and especially upon the nervous system.

The influence of tobacco, lead, and mercury, although not to be compared with alcohol in regard to the severity of their effects upon the nervous system, are nevertheless important in their relation with trauma. There is commonly a combined effect, such as tobacco and alcohol, or tobacco, alcohol, and lead, etc. Nor must the unexplained etiologic relation of refrigeration be lost sight of, especially its influence upon the origin of neuritis and neuralgia.

In discussing the infectious diseases the most important position is occupied by syphilis, although quite a number of the other infections, such as influenza, are not unimportant. It is perhaps a matter of more general knowledge that syphilis is in immediate etiologic relation to some of the

organic diseases of the nervous structure, such as tabes, myelitis, and the like, but the influence of lues upon functional disease is also weighty and undeniable. A. Hoffman (quoted by Saenger[1]) states that in the examination of 20 persons alleging trauma he found 9 syphilitics who at first denied syphilis. Here we meet with an important factor in the investigation of our negligence cases from the fact that the plaintiff will almost invariably deny syphilis, and unless objective phenomena of an unmistakable character are present the symptoms will always be ascribed to the influence of trauma. To illustrate this the following facts must be considered: Saenger[1] investigated a large number of syphilitics in regard to the nervous symptoms present. In nearly every case he demonstrated concentric limitation of the visual fields, increased tendon reflexes, scotoma, headache, vertigo; altered sensation, such as hypalgesia and anesthesia of the extremities, was common.

Thus we see that every nervous symptom produced by trauma and brought into causal relation may arise from an entirely different source, and how easily the physician making the examination may be, and unfortunately often is, led astray by the history given by the plaintiff.

The relation of trauma to predisposed conditions, either congenital or acquired, the question as to whether trauma can give rise to certain diseases, the aggravation of an already existing disease, are all propositions so weighty and difficult to decide that they cannot be discussed in detail here. But the subject of age in its relation to trauma must receive some consideration.

In a critical analysis of the statistics of accident cases it will be found that by far the greatest contingent is furnished by persons of advanced age, and certainly by those beyond the middle period of life. Here we must remember the decreased resistance of the organism, the brittle condition of the bones and arteries, so that slight injury here may often give rise to serious disturbance, and with this the diminished power of repair of the body. Advancing age in itself gives rise to a number of symptoms, such as atrophy, ocular changes, flaccidity of the muscles, tremor, loss of memory, and in case an accident takes place in such an individual all of these symptoms are readily ascribed to the results of the trauma.

There is hardly a realm in medicine in which such a dispute has taken place in regard to the eitology, pathogenesis, and nosological entity as in the traumatic neuroses. This is indicated by the enormous growth of the literature within the last decade. It is true the opinion of the older authors has been materially altered who regarded railway spine and railway brain as due to an organic lesion of these structures. It is universally admitted that the so-called traumatic neuroses consist of neurasthenia, hysteria, and hypochondriasis, and it remains to discuss the relation of these three neuroses to trauma.

A uniform etiologic conception of all cases cannot be given, nor is any single anatomic or psychologic theory sufficient to illustrate the exact genesis of traumatic neurosis. There can be no doubt, however, that the underlying condition upon which the majority of symptoms depends must be sought in the psychic sphere, and that this psychic sphere is stimulated or kept alive, if not actually generated, by the relatives, the friends, the physician, and the attorney of the injured person. It is true that the anxiety of providing for himself and perhaps his family is an element in this.

Because the etiology of traumatic neurosis is of such varied pathogenesis every case should be judged according to its individuality, and should be described either as traumatic hysteria, traumatic neurasthenia, hypochondriasis, or as mixed forms of these conditions, and the term traumatic neurosis should be abandoned, although some advise its retention more for practical than scientific reasons. Sachs-Freund[4] states: "The more positive we are in diagnosticating the individual affections the more will the number of those undefinable forms of disease be limited for which the term traumatic neurosis is such a convenient makeshift."

It is unnecessary to enter upon a detailed description of the individual symptoms.

They have no pathognomonic value, and all of the symptoms are present in other neuroses as well. Two great groups are to be differentiated: those with symptoms that relate particularly to irritable weakness—the neurasthenic and hypochondriacal forms—and hysteria.

Hysteria is characterized by four series of symptoms, which need not appear simultaneously and need not all be present in every case of hysteria: "(1) Anomalies of disposition, which reveal themselves in the emotions and the expression of emotion to slight external influences and in a rapid alteration of these emotions; (2) by a series of physical symptoms on the part of the nervous system, such as the arrest or spasmodic increase of activity of individual functions, such as paralysis, contractures, tremor, clonic spasms, anesthesia, hypesthesia and hyperesthesia of the skin and mucous membranes, alterations of the organs of special sense, vasomotor disturbances on the part of the heart, the gastrointestinal tract, and the urinary tract; (3) by the suggestibility of the symptoms, although this peculiarity, so prominent in non-traumatic hysteria, is less operative in the traumatic form; (4) by spasmodic attacks of various kinds which go hand in hand with disturbances of the emotion or of consciousness."[4]

How does trauma act to give rise to these hysteric phenomena?

That trauma can give rise to hysteria in a previously healthy, normal person will occur only in the rarest of instances, or (and this is the view of most recent authorities) not at all. But with a predisposition the hysteria may become manifest from the trauma, and the fright and shock will be the exciting factors which will at once produce the hysterical phenomena. Whether the fright need be severe, life-endangering, or of slighter consequence is of less importance than that the psychic reaction is an exceedingly forceful one.

The symptoms may also arise gradually after a long or short period following the accident. But even here a predisposition or even manifest hysteria must be accepted, in which the scare is of less significance than the anxiety for subsistence, the manifestation of sorrow, dread of sickness, etc. The idea of incapability of action, weakness of the limbs, and the various symptoms supposed to be due to these, may produce a picture that bears great resemblance to the other functional neurosis, neurasthenia, although in reality they are symptoms of true hysteria. The psychic shock may be so prominent, influencing the entire mental state, that psychoses may develop and hysteria form the transition to the traumatic psychoses, which naturally cannot be considered here.

In contrast to the protean symptomatology of hysteria is neurasthenia, which is characterized by abnormal irritability and excessive debility of the entire nervous system as well as each nerve region, produced by continued employment of "cell function," or which may be present "from birth" and characterized by an abnormal faculty of reaction of the nervous system. Just as in the congenital debility which gives rise to hysteria, intoxications (alcohol), the recovery from severe diseases, abnormal condition of the blood such as chlorosis, are predisposing factors. In consequence of hyperirritability of the nervous system all possible phenomena and even the natural functions of the organs of the body are noted as exceedingly unpleasant, and often as serious, by the neurasthenic.

Can trauma give rise immediately to neurasthenia in a nervous system previously healthy? According to Sachs-Freund[4] this must be denied if neurasthenia is to be designated an "exhaustive disease." The condition is quite different with the irritative symptoms designated as "neurasthenic," arising after injuries to the head, fractures of the skull, and the like. These may be due immediately to trauma, and for the most part are organic, such as cicatrices and bone splinters. Friedmann[5] has described these irritative phenomena as the "vasomotor symptom-complex," characterized by cerebral congestion, headache, vertigo, vomiting, cardiac palpitation, intolerance of the brain to exertion, etc.

Although we have denied that neurasthenia may be the immediate consequence of an accident, the question as to whether it may arise as a sequel of trauma, due to the prolonged rest in bed, poor nutrition, care and sorrow, must be answered quite differently. This is undoubtedly the case, just as it is true that an already existent neurasthenia, even though of mild character, may be aggravated by trauma. Here the fear of never regaining health in predisposed persons may give rise to hypochondriasis.

Two other factors must be considered in the development of these phenomena, namely, accident insurance and litigation. These cause the patient to aggravate his symptoms until the slightest difficulty becomes a serious condition, and hence the pecuniary demand is increased.

A few words in regard to hypochondriasis. This neurosis is characterized by prolonged mental depression. The entire attention of the patient is concentrated upon his physical condition, all of his ideas being brought into association with the accident. This means a loss of interest in his surroundings and for other impressions. His condition is always in the foreground, and conspicuous egotism is frequently the result.

The first physician consulted very often, by incautious expressions, such as reference to a severe, irreparable affection, may cause the development of the neurosis, and the frequent consultations with the attorney, examinations by experts, add fuel to the flame.

Prognosis.—G. A. Boone,[6] whose observation covers a period of nearly seventeen years, states that at least 90 per cent recover in a comparatively short time after the claims are disposed of. J. Billström[7] gives a summary of 103 cases of traumatic neurosis, the list being compiled from records of clinics and insurance societies in Sweden. Complete recovery sooner or later was the rule in 90 per cent. The local and monosymptomatic forms of hysteria or of pure neurasthenic conditions gave the best prognosis. He states that suggestion from the physician in making the examination, and especially repeated examinations, renders the prognosis less favorable, and he warns against stating to the patient the nature of his malady. Traumatic neurosis is not recognized by Swedish insurance companies. Naegeli[8] examined 138 patients who had been awarded an indemnity on account of traumatic neuroses. He states that when the claim is settled definitely the traumatic neurosis promptly subsides, and the earning capacity is restored as far as neurosis is concerned. It never recurred in any of the cases examined and never developed into a psychosis. He declares that in future we can assure such patients of a speedy and permanent cure with confidence which we have not hitherto possessed. This alone in many cases will ward off the neurosis.

Traumatic neurosis is, then, a curable affection in which the prognosis is good provided the proper treatment is immediately instituted. Where cure does not take place there has been a mistaken diagnosis, the condition being not one of traumatic neurosis but of actual organic disease, or where the underlying hysterical and neurasthenic predisposition has been so profound that the accident in itself has done little to aggravate the condition.

Treatment.—In no other nervous disease is the treatment so perplexing and frequently so unsatisfactory as in the traumatic neuroses. There is no difficulty in devising an ideal therapy, but its institution unfortunately is often impossible. The prophylaxis, already to some extent developed in the preceding, is the most important feature. The examination by the first physician must be so conducted that not the slightest "unfavorable" suggestion is conveyed to the patient. That such a method requires unusual tact and a profound knowledge of neurology and psychology is self-evident. By a painstaking and thorough examination—which often in itself has a favorable influence upon the patient—by assuring him that the accident will have no permanent influence upon his health, the main steps have been taken to bring about a speedy cure. An attempt

must be made to eradicate the memory of the accident; this will often be accomplished by the positive assurance of a speedy and complete restoration to health. An adjustment of the claim, if it be an honest one, as soon as expedient, as few examinations by physicians and experts as are consistent with the nature of the case, and placing the patient under the most favorable hygienic surroundings are essential. Encouragement to resume work, not necessarily the hard and arduous labor to which he has been accustomed, but some easier task, is imperative. This will direct the mind of the patient from his psychic condition and at once restore his earning capacity, at least to some extent. Abstinence from alcohol has already been mentioned. Where the injury has been severe treatment in a hospital designed for accident cases, such as now exists in Germany, should be instituted.

All of the physical remedies utilized in the treatment of nervous affections, hydrotherapy, massage, and electricity, are advisable in suitable cases. Sedatives are often useful, and drug treatment, particularly tonics, cannot always be dispensed with, but it would be erroneous to suppose that every case of traumatic neurosis requires bromides, massage, and electricity. What is necessary, however, is confidence in the attending physician and his positive assurance that the ailment is curable.

1. A. Saenger: Die Beurteilung der Nervenkrankheiten nach Unfällen., Stuttgart, 1896, p. 13, *et seq.*

2. M. Sternberg: Die Sehnenreflexe und ihre Bedeutung für die Pathologie des Nervensystems, Leipsic, 1893, p. 88.

3. Dumstrey: *Monatsschrift f. Unfallheilkunde,* 1896, No. 8.

4. Sachs-Freund: Die Erkrankungen des Nervensystem nach Unfällen., p. 415.

5. Friedmann: Ueber den vasomotor Symptomkomplex. *Arch. f. Psychiatrie,* Bd. 23, Heft 1.

6. G. A. Boone: *Cleveland Medical Journal,* March, 1910.

7. J. Billström: *The Hygeia,* Stockholm, December, 1910.

8. O. Naegeli: *Correspondenz-Blatt f. Schweizer Aerzte,* Jan. 20, 1910, xl, No. 3, p 57.

THE VALUE OF THE INTELLIGENT DIRECTION OF THE SICK POOR—A STORY OF THE STARR CENTRE ASSOCIATION OF PHILADELPHIA.

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It was the good fortune of the writer to be associated, for some eighteen months, with the Starr Centre Association, and the purpose of this paper is to explain what the Starr Centre Association is, what it attempts to accomplish, and the lesson that may be learned by a study of the association's methods in dealing with the sick and unfortunate.

Twenty-five years ago a few devoted friends of Philadelphia's unfortunates combined their interests and efforts in an attempt to better the living conditions of those whose homes were located in that district commonly termed the slum, the neighborhood of Seventh and Lombard Streets.

It was early seen and realized that even with the expenditure of large sums of money, not to count the spending of much valuable time, little could be accomplished without the coöperation and sympathy of those who were to be helped. From the beginning the work has been based upon the coöperative plan—the workers of the association giving freely both time and money as well as an active personal interest in the practical social work of this particular section of the city, while the people who were being aided showed an intelligent interest in and a desire to make use of the various branches of the association.

The nucleus of this broad charity was the St. Mary's Street Library, which began its existence in the slummiest part of the slum in 1884, and the outgrowth from that modest beginning has been the present association, with its many and varied branches of

helpful endeavor among the lives of those who require its aid.

The name of the association was adopted in loving memory of the untiring and enthusiastic endeavor of Theodore Starr for the betterment of the living conditions among the poor. This generous man's influence and help in tearing down disease-disseminating tenements and building on their sites sanitary houses was the real beginning of the association's work.

To give an idea of the aims of the association the writer can do no better than to quote a sentence from one of the little booklets issued in the interests of the work: "The purpose which underlies all our work is to come into sympathetic touch with the life of our neighbors, and through a variety of agencies, developed from a study of the people's needs, to raise their standard of living and thinking." Again in the annual report Miss Susan Wharton, secretary, and most active member of the association, writes of the essential qualification for helpful social work as "the ability to realize not the outward differences which are striking, but the inward agreements, the things all men have in common, is to understand how to help."

Among the agencies found necessary in carrying out the above purposes are the following: The association house with its business offices, the bank, the library, the kindergarten, the milk dispensary, the medical dispensary, the staff of visiting nurses, the friendly visitors, the penny lunches at the schools, and the various entertainments given to the "neighbors" of the association through the year.

First, as to the business of the association. This consists in obtaining money for the work and in seeing that it is spent in a way that will accomplish the most good. The object is to help those who need help in every way possible, but with the help dispensed by trained social workers, who by their years of training in the work have acquired not only the knowledge of what to do but also that of what not to do. Part of the routine work of the office is the listening to various stories of difficulties, family, financial, and social, and giving advice or aid as the case may require.

The Starr Centre Bank has accomplished wonderful results in encouraging thrift in its depositors, and the money saved in this way has often proved to be a very present help when the financial "rainy day" came.

The library of the association is one of its very strong and attractive features. When one thinks of the good that is done by the twenty thousand books in any library, and then picture the surroundings of the neighborhood at Seventh and Lombard Streets, where this particular library with its reading and game rooms, and with a librarian always ready and anxious to give help in the selection of books, is located, we can imagine something of the good it may accomplish. Here in this pleasant library, with its grateful warmth in winter and its pleasing coolness in summer, the children as well as the adults of the neighborhood are welcome, and here new worlds of pleasure are opened to the minds of the readers, whose lives contain all too little of that which is pleasing and helpful.

As we think of the undoubted influence for good that the library exercises upon the neighborhood we recall the words of that "specialist in libraries," Mr. Andrew Carnegie, who says: "It is not only the good that a library does that renders it valuable to a community, but it is also what it helps to prevent."

The kindergarten, with its thirty-five children in daily attendance, is accomplishing much. Not only are the mothers of the children able to earn a living, as unfortunately many of them are compelled to do, but the children are at the same time receiving instruction and being made happy and comfortable in surroundings that cannot but leave some happy impressions on their childish minds.

The milk dispensary, with the good that it does and the harm that it prevents, deserves a volume of its own, but one may give some idea of the scope of this branch of the work by stating that last year the dispensary sold for one cent each 540,000 bottles of clean modified milk. This milk

is really clean. The association inspects the dairies and insists upon the cows not only being healthy but clean and well cared for. Care is used to insure proper handling of the milk from the time of milking until it is delivered at the milk laboratory, and there carefully and scientifically modified to suit the different ages of the children requiring this diet.

When we recall the enormous, and, sad to write, the unnecessarily high death-rate in young children from improper feeding, and when the writer is able to state that in spite of inefficient mothers who, in some cases, were criminally careless in their ways of feeding their infants, the association has practically no deaths that can be ascribed to causes referable to the feeding, we can form some idea of what it means to have a pure milk supply at a very moderate expense in this section of the city.

The medical dispensary, too, deserves a greater space in this article than I shall give it. It serves a very useful purpose in doing its part toward instilling into the minds of the people with whom it deals ideas of cleanliness, fresh air, and preventive medicine stated in words that all may understand.

Each patient who comes to the dispensary receives a careful physical examination, and at all subsequent visits is reëxamined if his physical condition requires this. This statement as to the initial complete physical examination may seem out of place, but still we learn from the patients that comparatively few physicians make such examinations, and particularly is this true of the district in which the association works. After one has found children suffering from strangulated hernia who have been under treatment for "cramps," and after having seen several entire families treated for "fever" for some days when an examination of the throats revealed plain and easily recognized diphtheria, it will be understood why such care is used to have the people understand that there is nothing mysterious about sickness, and still less mystery in the methods of determining the presence of disease. At the dispensary they are taught that their recovery from an illness depends much more upon how they live than upon the kind or varieties of medicine they take.

The medical department with its dispensary was organized in 1905 by the association because, as they state in their little booklet, "the sick poor were not receiving the medical care which they needed." Sometimes this lack of care was due to ignorance and neglect, sometimes because of blind faith in much advertised patent medicines, but more often because neither the patient nor the family were able to pay for medicine, much less for the services of a physician. It is scarcely necessary to write that in a district where poverty, ignorance, and superstition go hand in hand there are among the medical advisers of the district a few charlatans; a larger number of careless practitioners, who because of the smallness of the fees paid seldom examine the patients and rely largely upon the treatment of symptoms; and I am glad to state there are also thoroughly competent physicians who practice modern scientific medicine and do everything in their power to make the lives of their patients what they should be.

Before the medical dispensary was opened the managers of the association made a study of the free dispensaries of Philadelphia, and decided that although the free dispensaries did much undoubted good their tendency was to pauperize the patients who attended them, and this feature of the dispensary work was not in the line of the coöperation which the Starr Centre was trying to bring about. They decided, and the writer thinks very wisely, to charge a small fee for all medical services in the dispensary as well as in the home. The fee was to be small, and in deserving patients unable to pay the amount should be paid from a fund for the purpose with the understanding that the collection should be made at a later date. The tendency of the association has been to educate the families under their care to a proper understanding of the value of medical services, and to raise the amount of the fee until it should

equal but not exceed that charged by the highest priced physicians of the neighborhood.

To an observer who daily has the opportunity of seeing the abuse of medical charity in dispensaries which are under the direct control and supervision of medical authorities, it is refreshing to see a dispensary under lay control so conducted that the patients are educated to value medical services and to pay for them.

It has been the constant aim to educate the people away from the harmful influence of patent medicines and to see the value of early medical treatment, of careful physical examinations and reëxaminations, and above all else the value of hygiene expressed in terms of fresh air, good food, and regular habits, with the local use of soap and water.

Perhaps there are those who think, as did the writer when taking up the work, that such ideas and ideals could not be realized in such a community, but whether it is because of the general advance in public knowledge of hygiene acquired through the daily press, or whether because of the more specific public lectures on the subject given by various antituberculosis associations, certainly it is true that it is much easier to accomplish results in the slums than it was five years ago.

Last year there were twenty-two hundred patients treated at the dispensary, and better still, for results accomplished, is the fact that the majority of these patients and their homes were visited by the social workers as well as by the friendly visitors, while the physician in charge saw and attended those patients who were too ill to come to the dispensary. The nurses made during the year twenty-two hundred house visits, while the friendly visitors made nineteen thousand calls. The more the writer saw of the good results of home visits by trained social workers the more he realized the impossibility of the usual medical outpatient department in a hospital accomplishing much for permanent good without some similar method of house visiting.

Another attractive and intensely practical feature of the Starr Centre work is the penny lunches at the schools. Those of us who see something of the kitchens and pantries of the homes in the crowded sections of the city will not wonder that these penny lunches fill a long-felt want in this section of the city. It makes little difference whether poverty, ignorance, indifference, or neglect is the chief cause of underfed children, of one thing we may be sure, and that is that the cause does not as a rule lie with the child.

One can also see what a field for useful endeavor is opened by the information derived by a visit to the homes of these underfed children by the trained women who conduct the sale of the lunches at the schools. These visits and the information gained add another link in the chain that means continued and more efficient help to those in need.

Stamp saving schemes in the schools to teach and to encourage thrift among the children have been successfully carried out, and last year the children saved in this way over nine hundred dollars, while adult neighbors, in the same way, saved over eleven thousand dollars.

The last branch of the organization to be mentioned is known as the coal club, and was organized among the colored neighbors for the purpose of encouraging them to buy coal from the association by the ton instead of their common and most improvident method of buying by the bucket. This club was most successful, its members depositing with the association over three thousand dollars to be used for this purpose.

The district covered by the association now includes that section of the city bounded by Pine Street on the north and Washington Avenue on the south, and by the Delaware River and Eighteenth Street on east and west. The chief work is done among the Italians and negroes, although the association also deals with the Russian Jew, the Lithuanian, the Pole, and the Greek.

TREATMENT OF PUERPERAL ECLAMPSIA.

ZINKE in the *American Journal of Obstetrics* for February, 1911, reports his studies upon ninety cases of eclampsia and reaches the following conclusions:

1. All cases of puerperal eclampsia are not alike; much depends upon the extent to which the kidneys and liver are involved. The so-called "malignant form," as the term implies, is fatal from the beginning; the so-called "benign variety" ends in recovery, sometimes in spite of the treatment adopted. The variety of "mean gravity" is no doubt favorably influenced in its course by careful and judicious treatment.

2. The prognosis for both mother and child is much worse when the convulsions supervene during pregnancy, the maternal mortality ranging between 35 and 50 per cent; the fetal mortality between 65 to 75 per cent. The prognosis of intrapartum convulsions is more favorable, maternal as well as fetal, and amounts to about 25 per cent. The maternal mortality of postpartum convulsions is, as a rule, about 7 per cent. (In his own experience, the author states, having had but two cases, it is 50 per cent.)

3. The most important treatment of puerperal convulsions is prophylaxis before the appearance of symptoms as well as before the eclamptic attacks, when prodromal signs exist. The patient must be protected from injury during the convulsions, and the duration and frequency of the paroxysms should be controlled and abbreviated, medicinally rather than surgically. Veratrum viride in sufficiently large doses is the remedy *par excellence* to reduce the blood-pressure, and the pulse frequency. Hot baths and hot packs judiciously employed, and free but not excessive catharsis, strict milk diet, and the recumbent position are of almost equal importance.

4. Chloral in large doses per rectum, if the patient is very restless during the interval of the attacks, is an effective remedy. Chloroform inhalations, especially if of long duration, should be regarded as a source of great danger; the same may be said of frequent and large doses of morphine, but both of these drugs have their ardent advocates.

5. The antitoxin treatment (the thyroid, parathyroid extract, and nephrin) may play an important part in the future in the treatment of eclampsia. "What an advance should veratrum viride and nephrin and parathyroidin prove, some day, to be synergetic!" (Archambault.)

6. Saline and sugar-water instillations can do no harm and may do a great deal of good.

7. If, of late years, the maternal mortality of puerperal eclampsia has been reduced at all, it is the direct result of careful prophylaxis and intelligent medical care. Surgery has contributed very little to it. The dictum "Assist in labor, but do not induce it," or "Treat the convulsion and let the pregnancy take care of itself," is better than the dictum, "Empty the uterus as soon as possible in every case of puerperal convulsions no matter what the period of gestation."

8. Decapsulation of the kidneys, manual, balloon, and metal dilatation, especially the old-time accouchement forcé, are, in the opinion of the writer, hardly justifiable and should have no place in the treatment of puerperal eclampsia.

9. If, however, the symptoms are very threatening and the medical care above described fails to bring about promptly an amelioration in the patient's condition, an easy delivery may be desirable; if the patient be near term, but not in labor, the conservative Cæsarian section should be selected; if the patient is just within the period of viability, vaginal hysterotomy is the proper procedure; if the fetus is not viable (before the end of the sixth month of gestation) deep cervical incisions will quickly relieve the uterus of its contents.

10. No one has a right to perform any of these three operations unless experienced and familiar with the technique of each. And, in every instance, the patient must have the benefit of strict asepsis. Without these requirements it is best to rely entirely upon the medical care above outlined.

EDITORIAL.

THE TREATMENT OF THE SUMMER DIARRHEAS OF INFANCY.

There are few conditions which have caused so high a mortality among the young as the diarrheas which affect children, under two years of age, during the summer months. Within the last decade our knowledge concerning the underlying causes in these intestinal disorders has been very greatly increased. Prophylactic measures designed to properly keep the food of children have done much toward diminishing the frequency of these ailments. A better understanding of how the food should be prepared for the individual child has also been an important factor, and studies in the bacteriology, not only of the foodstuffs themselves but of the intestinal contents, have given us much additional information.

In the *Boston Medical and Surgical Journal* of March 2, 1911, a valuable series of papers dealing with intestinal disturbances in infancy is contributed by eleven clinicians and investigators, a large part of the information presented being gathered from investigations carried out in the Boston Floating Hospital in 1909 and 1910. It is quite impossible for us in the limited space at our command to quote all these papers, particularly as to their bacteriological characteristics. It is, however, interesting to note that in addition to the measures already named for the purpose of benefiting such patients, Kendall suggests that in bacillary dysentery the microörganisms most commonly found are the Flexner and Shiga types, the bacillus coli, and the streptococcus.

As most of the foodstuffs have been swept out of the alimentary canal, any bacteria which remain are living chiefly upon the intestinal secretions. All available sugar is exhausted, and they have to depend upon albuminous substances. Furthermore, it has been shown that when bacteria split up nitrogenous substances, in the absence of carbohydrates, they cause the development of putrefactive products which may be very toxic. Therefore, according to Kendall, the development of these poisonous products of the decomposition of proteids could be prevented by providing these organisms with a certain amount of easily utilized carbohydrate. He advocates the use of carbohydrates in these patients in an easily digested form, and even goes so far as to advise the employment of lactose, since it is the most easily assimilated sugar and is, of course, the normal sugar for babies, the flora developing on this sugar being particularly favorable for the patient, which is not true with certain other sugars.

In urgent cases he even advises that 2.5 per cent of dextrose in normal salt solution be intravenously injected, in addition to feeding lactose by the mouth. Although he admits that as yet his experience has not been sufficiently large to justify him in claiming the lactose plan as a valuable method of procedure, nevertheless he believes it should have further trial. His method is to clean out the alimentary canal by the use of castor oil, to forbid all food for twelve or fifteen hours except sterile water, and after this to feed with a 5-per-cent solution of lactose in sterile water given by the mouth for several days until the acute symptoms abate. Nitrogenous food in the shape of prepared beef extract or milk is then gradually begun.

Kendall's observations, however much they may prove valuable in the future, are hardly as practical as those made by Bowditch, who advises that after the use of castor oil, or calomel, the former being given in the dose of one-half ounce, no effort should be made to stop peristalsis, as this is the means by which the bowel gets rid of poisonous material. If vomiting is active, lavage may be used, and irrigation of the colon is exceedingly valuable unless profound prostration exists. These irrigations may be made with normal salt solution, or may be rendered more active by the use of 1 to 3 per cent of silver nitrate

in water, without, of course, the presence of sodium chloride. Not more than two irrigations a day should be practiced. If there is a high fever the temperature of the fluid injected should be below 98°. If, on the other hand, the patient is in collapse, the temperature should be as high as 102°. The quantity employed of the nitrate of silver solution is usually a pint. Bowditch has also used lactose and dextrose in enemata with the objects already named. He was unable to observe any distinct benefit from their employment. He, of course, emphasizes the need of employing boiled water, and in prohibiting the use of milk until the alimentary canal is cleansed. When toxemia is marked and accompanied by high fever with cold extremities, he evidently believes that hydrotherapeutic measures, such as cold irrigations, packs, and baths, with appropriate stimulation to the heart, are valuable measures. Where the child is much emaciated by the diarrhea, hypodermoclysis or rectal infusions are without doubt of value. If the dextrose is placed in the fluid which is injected and on examination the urine reveals sugar, its use must be stopped.

As to cardiac stimulants he thinks that alcohol has little value, and that small doses of strychnine, varying from 1/500 to 1/250 of a grain, are useful when cardiac failure is imminent. He did not find that camphorated oil and caffeine were of much value.

In another paper by Richard M. Smith, detailing the use of nitrate of silver in 32 cases, he found that out of 22 in which the treatment had a fair chance 18 were improved, 11 markedly so, and seven slightly. Of the six patients that received nitrate of silver irrigations late in the disease, three were benefited. The strength of silver solution which he employed was 3 per cent. If blood and pus were present in the movements, these nitrate of silver injections seemed to be particularly advantageous.

In another paper by Young is an analysis of 178 cases of infectious diarrhea. It is stated that the average duration of stay in the hospital was about ten days; that 32 per cent of these 178 cases died within the first five days, whereas in those that were discharged well the average number of days in the hospital was twenty-six, and for those discharged improved, twenty-three. In a considerable portion of cases complications arose. For example, 48 out of 178 suffered from acute otitis media, 12 from eclampsia, 7 from bronchitis, and 5 from bronchopneumonia. As illustrative of the mortality of this condition it is interesting to note that out of 178 cases received at various periods of illness, during the seasons of 1909 and 1910, 96 died, 44 were discharged well, 17 discharged improved, 5 discharged not improved, and 16 discharged against advice. In other words, the mortality in this particular series was 50 per cent. Of course, these were hospital cases derived largely if not entirely from the slums of a great city, and therefore do not represent conditions in private practice.

THE USE OF CAMPHOR AS A DIFFUSIBLE STIMULANT.

Nearly twenty years ago, after reading the valuable lectures by Graves, of Dublin, on Clinical Medicine, in which we noticed his strong indorsement of camphor as a diffusible stimulant during the course of exhausting fevers, we employed this substance in the way in which he indicated and obtained results which led us to call the attention of the profession to Graves's original investigations. Since that time we have been much interested in observing the increasing popularity of this substance, not only in the collapse of severe fevers but also to combat collapse during or after surgical operations. We believe that we are correct in the assertion that it is a powerful agency for good when properly employed, but that it very speedily loses its power of rallying a patient, and therefore should not be frequently given but be kept in reserve for serious circulatory or nervous collapse.

In the *New York Medical Record* of January 28, 1911, Weber strongly advo-

cates its employment in large doses in the treatment of pneumonia, and reports cases in which its free administration acted most advantageously. He further quotes Seibert's recommendation made in the issue of *Münchener medicinische Wochenschrift* of September 7, 1909, in which 21 cases of pneumonia were treated by hypodermic injections of camphorated oil. Usually a 20-per-cent solution in oil of sweet almonds was injected into the thighs every hour until eight doses a day had been given, representing about 30 grains of camphor in twenty-four hours, or 120 in four days. We cannot help feeling that these doses are excessive and dangerous. It must not be forgotten that camphor is capable of acting as a poison and of producing convulsive seizures as well as intense cerebral congestion.

Our experience leads us to believe that where a dose of one or two grains repeated in a few hours fails to do good, larger doses will not produce beneficial results, and we feel quite confident that its use over a number of days in the way just described is rarely if ever advisable. As already stated, we feel certain that its field of usefulness is limited to the immediate necessities of the patient who has suddenly gone into collapse, and who must be rallied within a short time if his life is to be saved. We have on more than one occasion, in cases of far-advanced carcinoma, in which the exhaustion was extreme, and when death seemed imminent, yet in which for family reasons it was considered desirable to prolong life and consciousness for a few hours, seen camphor produce the effects which were needed—probably by rallying all the patient's reserve energies so that they could be concentrated upon the vital processes for a short period.

THE INFLUENCE OF EXERCISE UPON THE CIRCULATION.

The veriest tyro knows that exercise produces changes in the circulation of the blood. Every physician must take these changes under careful consideration, and many physicians of large experience have found that properly graduated exercises are not rarely of signal value in the treatment of various forms of heart disease, whether they be myocardial or valvular. In some instances the exercises consist in Swedish movements or passive exercise. In other instances, gentle hill-climbing, as prescribed by Oertel and others, has proved advantageous; but in all cases, as before indicated, the severity of the exercise and its duration must be carefully controlled. An interesting research along these lines has recently been published by Lowsley in the *American Journal of Physiology* of March 1, 1911. This investigator found that all types of exercise produced a fall below normal in the systolic, diastolic, and pulse pressure, and that this diminution in pressure to a subnormal point is maintained for a considerable period of time, although the primary effect of exercise for a brief period is to raise these three types of pressure, the greatest rise being in the systolic pressure. There is also an increase in pulse-rate, as we all know. If the exercise is very severe, the subnormal period will be maintained for a longer time than if it is moderate, the systolic pressure invariably falling more rapidly than the diastolic, or, in other words, the pulse-pressure becomes weaker; the actual blood-pressure in distinction from systolic pressure not being modified to a very great extent. After exercise the pulse-rate rapidly decreases, and as the pulse-rate falls there may be a secondary rise which is perhaps compensatory for the low pressure of the subnormal stage to which we have already referred. In other words, it would seem that severe exercise places a far greater strain upon the heart than upon other portions of the muscular system.

So far as the practical application of Lowsley's investigations is concerned, he believes that so-called "field events" in athletics produce less strain upon the vascular apparatus than rapid exercises, such as basket-ball, football, running exercises, and rowing. Among the field events which he considers less productive of stress are,

however, such vigorous forms of exercise as shot-putting, discus and hammer throwing, baseball and gymnasium work. In other words, sustained or prolonged exercise seems to produce greater strain than severe brief exercise. In this connection it is to be remembered that less strain is produced by walking a number of miles at a moderate rate than by sprinting 100 yards at top speed. Long-distance running races, and, without doubt, long-distance rowing races, are peculiarly prone to be followed by a long period of subnormal blood-pressure, proving that the circulatory apparatus has been at least temporarily weakened and depressed.

CEREBROSPINAL SYPHILIS.

The comparatively recent discoveries concerning the specific cause of syphilis, the characteristic reaction denoting its presence in the body, and the possibility of inoculating the higher apes with the disease, have rendered possible not only a more complete and satisfactory explanation of the lesions found but afford at least a promise of a definite specific remedy. As to the causal microörganism, it is universally admitted to be the treponema. Wassermann's specific reaction seems to be dependent upon some change in the lipoid bodies contained in all living cells and essential to their activity. It has been shown by Monk that when these lipoid bodies appear as droplets in the cell this indicates disintegration of the cell and destruction, so that a superabundance of lipoids indicates the breaking up of the nucleoids and cell substances into lipoid substances. In tabes, general paralysis, and thrombotic softening the ganglion cells and neurons break down and throw into the cerebrospinal fluid certain products which, acting as irritants, produce leucocytosis and infiltrations, particularly marked in parasyphilitic affections. It is true that lipoid substances exist in normal serums and that their excessive quantity is incident to the syphilitic virus.

J. Mitchell Clarke (*Bristol Medico-Chirurgical Journal*, March, 1911) quotes Levaditi and Yamanouchi to the effect that the serum reaction of syphilis and general paralysis is the same and has no relation to the spirochæta pallida, and is not due to the intervention of syphilitic antibody or antigen in the usual sense of these words.

The Wassermann reaction is regarded as due to the presence in the serum and cerebrospinal fluid of unknown bodies, which may be cholesterol-esters, which precipitate and determine the fixation of the complement in presence of bile salts, soaps, lecithin, etc. Wassermann's reaction is caused by a histogenic and not a bacterial substance, and is quantitative and not qualitative.

Clarke notes that the Wassermann reaction is positive in nearly all cases of syphilis and is a specific reaction; that it may be obtained after twelve to fourteen days in primary syphilis; and that the most prominent simplification is that dependent upon the fact that human serum is normally a hemolytic to the red corpuscles of the sheep. The three bodies required for this test are, therefore, the antigen (extract of liver or heart muscle), the suspected serum, and washed sheep's corpuscles.

Clarke considers that the presence of lymphocytosis and of globulin in cerebrospinal fluid is of much value in the diagnosis of syphilis and parasyphilis. Lymphocytosis is most marked in parasyphilitic affections, namely, tabes and general paralysis.

Nonne and Holzmann conclude from a study of nearly 300 cases that in tabes and general paralysis, lymphocytosis and globulin reactions are present almost without exception, including incipient cases—both seldom fail in cerebrospinal syphilis; that the Wassermann reaction is constant in the cerebrospinal fluid of general paralysis, and is absent or feeble in tabes; that when this test is positive in epilepsy or tumor cerebri, the epilepsy is a sign of cerebral syphilis, and the tumor is a syphilitic neoplasm, or the patient is suffering from syphilis of some other organ; and that lymphocytosis and the globulin reaction are

not casually related to Wassermann's reaction in the cerebrospinal fluid. In syphilitic diseases of the nervous system all four reactions—*e.g.*, lymphocytosis, globulin reaction, and Wassermann's reaction for serum and cerebrospinal fluid—are in their intensity and relation to each other independent of the stage and course of the disease. It is further observed that the Wassermann reaction is never positive in the cerebrospinal fluid unless it is positive for the serum; that a negative result of the serum renders general paralysis unlikely; and that in syphilitic patients with a positive serum reaction and a normal central nervous system the cerebrospinal fluid is negative. The test is as a rule negative for the cerebrospinal fluid in cases of cerebrospinal syphilis where the serum is positive. The effect of mercurial treatment in cerebrospinal syphilis is to abolish the reaction after a varying time; it may again, however, become positive. Treatment by inunction and by injections of mercury is more effectual in this respect than by the mouth.

Clarke makes a distinction in regard to the para- or meta-syphilitic affections in which the virus displays a selective action, classing tabes and general paralysis as sequels of a previous syphilitic infection. These affections present examples of the selective action of poisons directly or remotely due to syphilis.

In cerebrospinal syphilis there is no evidence of any such selective action of poisons. Its results are due to long-recognized anatomical lesions of syphilis in the meninges, vessels, and supporting framework of the central nervous system, and the changes in the nervous elements secondary to these, produced by interference with their nutrition, and by compression from gummatous exudations and tumors. These anatomical changes are uniform in syphilis.

At all stages there are exudations of small round cells, necrosis of some of them probably by the destructive action of the spirochætæ, endarteritis, and organization later of such fibroblasts as escape destruction by sclerosing tissue. The late development of vascular lesions is perhaps more readily understood than the production of gummata years after the original infection. In these gummata, however, spirochætæ have been found, as also they have in syphilitic aortitis; and apes have been successfully inoculated from gumma developed in the tertiary period. This suggests that the spirochætæ may long remain latent in the tissues.

In considering cerebral syphilis Clarke calls attention to the change in mental processes and regards this as amongst the prodromal signs, the patients often being apathetic, forgetful, drowsy, irritable, or passionate. Of all the prodromal signs the most frequent is headache. The occurrence of recurring paralyses is highly suggestive; whilst transitory or permanent aphasia, transient or permanent cranial nerve paralyses, and epileptiform fits in an adult not previously subject to epilepsy, should always suggest inquiry as to previous syphilitic infection. In cerebral vascular lesions of syphilis, the usual cause of hemiplegia is thrombosis. Occasionally there is a hemorrhage. In diagnosing the syphilitic cases from those of simple apoplexy, the Wassermann test, the investigation of the cerebrospinal fluid for lymphocytosis and the globulin reaction are of value. As gumma generally grows into the brain from the meninges it will invade the cortex, and is associated with Jacksonian and sometimes with general epileptiform attacks. There is usually concomitant meningitis or vascular disease. Gumma appears occasionally as an isolated lesion. Such gummata may occur in the substance of the cerebrum, cerebellum, or in the medulla oblongata. The signs will be those of a cerebral tumor. Optic neuritis is not invariable, though generally present; it is sometimes intense.

Clarke particularly pleads against the administration of large doses of potassium iodide indiscriminately in all cases of intracranial tumor on the chance of their being syphilitic. With the present diagnostic means at hand such treatment is neither scientific nor justifiable. When symptoms of pressure arise, whether the disease be

gumma or other form of tumor, operation is indicated. Meningitis sometimes develops soon after primary infection—in at least one reported case as early as a month following chancre. Lumbar puncture has shown under such circumstances a pure lymphocytosis.

As to the Argyll-Robertson phenomenon, Clarke does not believe that in its fully developed form, not a mere sluggish reaction of the pupils, it occurs in cerebrospinal syphilis, but that its presence is an indication of a further degenerative change in the central nervous system—that is, of parasyphilis. In any case in which it is found it must arouse fear of tabes or general paralysis, or possibly of some other degenerative affection in the future, if signs of such disease are not already present. In 67 cases of cerebral and spinal syphilis the sign was present in four, of which number one developed tabes later. Clarke regards the prognosis in purely vascular lesions, even if treated early, as not good, and considers that hemiplegia of vascular origin may be followed in a few years by diffuse vascular and meningeal lesions. Hence the very great importance of thorough treatment and of seeing that the patient returns for fresh courses of treatment, although keeping well, at suitable intervals. In cases of isolated gumma and of pure meningitis the prognosis is fairly good, and there seems less tendency to a recurrence of fresh lesions. Generally speaking, the ultimate prognosis when the symptoms indicate extensive lesions is grave. Although the immediate results of treatment are often very satisfactory, there is a strong tendency to a return of the trouble in the same or other forms, with a final result of a decided and permanent impairment of the patient's mental and physical capacity. He is no longer the same man in his business or profession, which he now carries on with less energy and ability, or too often is unable to carry on at all. Further, in the majority of cases life is shortened.

As to spinal cord affections the symptoms do not correspond with well-defined disease of the system of neurons in the cord. The wide extent and variety in the nature of the lesions are notable. The chief symptoms are spastic paresis or paralysis with some ataxia, exaggeration of the deep reflexes, often to a marked degree, early affection of the bladder, and root lesions.

The most common condition in cases of spinal syphilis is that generally entitled meningomyelitis. The onset may be acute, sudden, or gradual. Incontinence of urine and feces is commonly an early symptom. Recovery to the extent of ability to return to full work occurs in only a small proportion; in the rest it is partial only, which generally means that some degree of spastic paresis, with defective control over the bladder, remains.

The disturbances of sensation are less than those of motion, and recovery from them earlier and more complete. In all these cases thorough and especially early treatment is all-important as regards recovery. Hence it is essential to recognize the initial symptom. At first there is generally pain, either in the back or legs, or often in the distribution of one or more nerve-roots, or a girdle pain which, as a root symptom, persists throughout the course of some cases. Then signs of intermittent claudication may precede the paralysis—that is to say, transitory attacks of paresis or even paralysis of the legs, brought on by exertion and disappearing again on resting. Transient paresthesiæ in the legs or slight loss of control over the bladder are also important, and lastly there is not infrequently a coincidence of signs of intracranial affection. In any case a lumbar puncture should be made, the spinal fluid examined for lymphocytosis and for globulin, and in case of doubt Wassermann's or Fleming's test carried out.

As to the treatment of syphilitic cord affections, the most important points, according to Clarke, are rest in bed and the prompt and efficient administration of mercury. Of course, patients in an acute or subacute stage, or disabled by some form of paralysis, are physically unable to get about; but complete rest is equally necessary and

beneficial, although the need for it may not be so immediately obvious in cases of chronic disease during the first period of treatment. Mercurial inunctions are preferred and are given daily for two months. The patient then returns in about three months for a further course, and again at intervals of about six months for about three years. In some cases Clarke employs intramuscular injections of protiodide of mercury. Iodide of potassium is given in some cases, but not continuously, nor is it ever advised to go beyond the dose of 30 or 40 grains every four hours. The question as to the permanent effect of "606" injections upon syphilitic affections of the brain and spinal cord remains to be yet determined. As to the immediate relief of symptoms, results abundantly attest the extraordinarily prompt effects produced by either intramuscular or intravenous medication. Considering the comparatively few deaths reported from the great number of injections given, which must now number at least some hundreds of thousands, it is obvious that "606" is a comparatively safe drug. The tendency upon the part of those most experienced with its administration is to give a maximum dose (.6 of a gramme) and to repeat this dose in about six days, and on recurrence of symptoms later to continue the injection.

THE NEW REMEDY FOR SYPHILIS.

With the popularization of the arsenobenzol injections in the treatment of syphilis, and consequently their administration to patients by the tens of thousands, there has come the conviction to the minds of those who have had the opportunities for clinical observation and who have taken the time to become conversant with current literature, that the drug, even when given intravenously, is exceedingly safe, and in its immediate effect is astonishingly efficient.

Adami and Campbell (*Canadian Medical Association Journal*, March, 1911) contribute a semihistorical and clinical sketch embodying the present ideas of "606" and their conception of its scope. This experience is in line with that of others, to the effect that "606" acts more quickly and more surely on the lesions of syphilis than either mercury or potassium iodide; it heals where mercury and potassium iodide have failed; it destroys the spirochætæ in a most dramatic manner. On the other hand, they find since they give the drug intramuscularly that its administration is painful and time-consuming, and is a more serious matter than the giving of mercury or potassium iodide. Judging from the work of others they expect recurrences in about one-third of the cases. The question which appears most live is, whether we should not anticipate this recurrence by the administration of a second or third dose. In this relation it is not uninteresting to note that Neisser repeats the injection in three to six weeks, and follows this with a course of mercury, the two remedies seeming to work together even better than separately. Michaelis advocates a repetition of the injection in all cases. Schreiber has already carried this out in some 650 cases, in only one of which did a recurrence take place, and that in a case in which the second injection was not given till after the recurrence. Kromayer expresses himself frankly in favor of a chronic, intermittent treatment, by giving repeated injections of small doses (six doses of 0.2 gramme) within a period of twelve days. And lastly, Ehrlich himself, in his latest word on this subject, recommended an intravenous injection of 0.4 to 0.5 gramme, followed in forty-eight hours by an intramuscular injection, after the method of Kromayer, of 0.3 to 0.4 gramme, in order to supplement the more intense but fleeting action of the intravenous injection by the more prolonged but less intense one of the intramuscular deposit. Fortunately, so far, and in contradistinction to such drugs as arseno-phenylglycin, patients have not shown anaphylactic tendencies nor increasing sensitiveness to "606."

In conclusion, Adami and Campbell do not wish to appear unduly enthusiastic.

They fully recognize that mercury and potassium iodide have been powerful weapons in the treatment of syphilis, and that, on the whole, syphilis has been well treated. Nay, further, under certain circumstances the action of either mercury or potassium iodide has seemed miraculous. In a word, they have not been altogether powerless against syphilis. But even if they must recede a little from the overenthusiasm which greeted the appearance of Ehrlich's new remedy, no drug, not even excepting calomel, has ever produced such immediate and consistent effects as "606" on the lesions of syphilis.

Because of the severe, prolonged, and at times crippling pain incident to intramuscular injections the tendency of the day is to give "606" intravenously. This implies a somewhat elaborate apparatus, by means of which the temperature of the injection may be maintained at the required point, and an operator skilled in needle puncture of the vein. Properly given, the administration of a full dose rarely excites symptoms other than a transitory nausea. The hope of curing definitely by a single dose is now practically abandoned, and it is customary to repeat the intravenous injection in five days, and thereafter at intervals of six or eight weeks in accordance with the presence or absence of a Wassermann reaction. Whether this treatment or some modification of it is destined eventually to replace mercuric treatment remains yet to be proven.

REPORTS ON THERAPEUTIC PROGRESS.

PITUITARY EXTRACT AS AN ECBOLIC AGENT.

J. HOFBAUER (*Centralblatt für Gynäkologie,* 1911, No. 4) says that the experience of Foges and Hofstaetter induced him to also employ pituitrin as an ecbolic agent. In a case of an insufficiency or absence of labor pains, from 0.6 to 1.3 gr. of pituitrin was injected subcutaneously. In every one of the five cases referred to the result was remarkable. Within a short time the action of the uterus was a normal one and exhibited no tetanic character. This was especially noticeable during the period of expulsion. It is noteworthy that Hofbauer observed the same effect after a repetition of the pituitrin injection that followed the first administration of the remedy.

The author confirmed his clinical observations by means of animal experiments on the puerperal uterus of rabbits; a few minutes after the injection there were active contractions of the uterus, as was demonstrated by means of a delicate scientific apparatus.

As a desirable by-effect of the pituitrin the patients several times expressed a desire to urinate immediately after the injection. This induced Hofbauer to also employ the preparation in cases of pregnancy complicated by dysuria, in which it proved successful.

A CONTRIBUTION TO THE MEDICINAL TREATMENT OF BRONCHIAL ASTHMA.

FRIEDEBERG (*Deutsche medicinische Wochenschrift,* 1911, No. 6) for the purpose of inhalation by means of a spray apparatus recommends the following composition that had already been successfully employed by Goldschmidt (*Münch. med. Wochenschrift,* 1910, No. 43):

Alypin nitrate, 0.3;
Eumydrin, 0.15;
Glycerin, 7.0;
Aquæ destil., 25.0;
Ol. pini pumil., gtt. 1.

As a vaporizer Friedeberg makes use of the glaseptic nebulizer manufactured by Parke, Davis & Co., which he prefers to other similar contrivances. He says: "The patients learn to manipulate the apparatus without difficulty and are glad to have an

active remedy at their command that they may even employ when at work, if necessary. For almost without exception it is possible, if the inhalant is administered in time, to abort an attack or at least to modify its severity materially." The author reports fifteen cases, including some instances of chronic asthma, in which he obtained very good results, and regards the above-mentioned formula, administered in the glaseptic nebulizer, as the best means of combating asthmatic attacks at present.

PUERPERAL CONVULSIONS.

ALEXANDER in the *Lancet* of January 28, 1911, reports cases of this condition and describes his plan of treatment as follows:

The hastening of delivery was adopted in only seven cases. In five cases forceps were used, and one of these was suffering from pneumonia at the time and died from that disease. In one case artificial dilatation of the os and version effected the delivery of a decomposed fetus. The mother died suddenly a few hours later with a cardiac clot. Another transverse case recovered after delivery by version. The delivery was natural in 29 cases. In one case labor had not really commenced, and the patient was so much better after admission that operative treatment was postponed. Some sudden severe attacks carried her off before the surgeon could be communicated with. The vessels of the encephalon were intensely congested and much fluid was found in the subarachnoid.

In the 29 natural deliveries one had recovered and was three days well, when she became listless and apathetic and died from asthenia. No necropsy was made. A second case was delivered of twins and had most severe attacks post partum; venesection and salines failed to relieve. A third died from edema of the lungs, as verified post mortem, a disease that affects ordinary epileptics. A fourth died from apoplexy, with hemorrahge into the ventricles and into the right corpus striatum. A fifth case had recovered completely and died from syncope five days after delivery. A sixth case had fits three days before admission. The temperature after delivery suddenly rose to 103.8°, and the patient became comatose and died rapidly. No post-mortem examination could be obtained. A seventh case had postpartum attacks. Venesection was performed, but the patient died. An eighth case had hemorrahges into the gray matter of the motor area of both sides of the encephalon.

Two deaths occurred in seven cases of operative emptying of the uterus, or 28.5 per cent; and nine deaths in 29 cases in which nature was not interfered with, or 31 per cent. If we take the circumstances of the case into consideration the author thinks it will be conceded that very little difference can be made between the result of the two methods of treatment, and a study of the cases will show that the presence of the child in the uterus does not seem to have much influence either on the onset, the cessation, or the continuance of the fits.

Routine treatment consisted of purgation, such as jalap, magnesium sulphate, calomel, and croton oil. Diaphoretics: blanket bath, hot packs, pilocarpine, hot poultices over kidneys, saline diuretics, hot drinks. Nerve sedatives: bromides, morphine, chloral in varied doses; fomentations to loin, dry cupping over kidneys, venesection of arm, ice to head, and thyroid powder, chloroform, and oxygen inhalations. Of these the bromides, morphine, and chloral are tried friends that have been freely used. The only drawback to their liberal use is the reflection that in case of failure the death may have been due to excess of medication. Fomentations to the loin, dry cupping, blanket baths, and hot packs are useful and always harmless. Pilocarpine is, the author believes, of great value. Thyroid was used in one case, but she was recovering when it was given, and there are no statistics of a sufficient series of cases of all kinds treated by this drug to show its real value. Venesection failed in two cases in which it was adopted and seemed to hasten the end. Saline injections, either into

the rectum or the subcutaneous tissues, are of great value. Rectal salines, in conjunction with oxygen inhalations, have produced some startling improvements in many cases.

The writer does not enter upon the pathology of eclampsia, but thinks there is no doubt that in that disease there is intense congestion of the cerebral vessels and effusion of serum or of serum and blood over the cerebral convolutions, and sometimes rupture of cerebral blood-vessels. All of these incidents are well illustrated in the cases reported, one case being of interest for its simulation of eclampsia.

ON THE ACTION OF PITUITRIN IN POSTPARTUM HEMORRHAGE.

FOGES and HOFSTAETTER (*Centralblatt für Gynäkologie,* 1910, No. 46) say that in 63 cases of postpartum hemorrhage and after one abortion the intramuscular injection of pituitrin (in doses of one to two cubic centimeters) proved superior to ergotin with reference to the intensity of the contraction and continuance of the excitability. The authors were enabled to note the effect of pituitrin particularly in six cases of extra-peritoneal Cæsarian section. "After not more than five minutes one could see how the exposed uterus contracted, in response to a light tactile irritation, to a firm ball. The action continued for a long time, which accounts for the fact that there was no hemorrhage, a complication that is always feared in connection with Cæsarian section." In accordance with their observations, the authors are of the opinion that there is no doubt concerning the specific effect of pituitrin upon the excitation of the uterus. Pituitrin is preferable to adrenalin because it does not increase the blood-pressure as much. It is therefore an agent which increases the contractility of the uterus, and thus represents an excellent remedy for postpartum hemorrhage. The fact that the site of injection is not painful or becomes infiltrated, as is sometimes the case after the use of ergotin, is another great advantage.

ON THE ACTION AND DOSAGE OF ADRENALIN FOR SUBCUTANEOUS INJECTION.

KIRCHHEIM (*Münchener medicinische Wochenschrift,* 1910, No. 51) is of the opinion that the infectious diseases constitute the principal field in which the adrenalin treatment is of service, and has employed adrenalin successfully in many cases of severe collapse in connection with scarlet fever, pneumonia, and typhoid fever. He does not hesitate to use large doses. Thus he repeatedly administered 24 mgr. (hourly one syringeful of the original solution); once he gave twice as much. He invariably administers it by subcutaneous injection. In connection with this manner of administration there are no after-effects. The fact that such large doses of adrenalin (in isolated instances from 100 mgr. and more) may be employed with immunity in infectious diseases may be explained by the findings of Loeschke (*Münchener medicinische Wochenschrift,* 1910, No. 1), according to which there are alterations in the suprarenal substance in connection with toxemias and infections that bring about a reduction or entire cessation of the normal adrenalin reaction of the organ.

CITRATE OF SODA IN INFANT VOMITING.

The *British Medical Journal* of January 21, 1911, quotes VARIOT (*La Clinique,* Oct. 28, 1910) as considering the citrate of soda to be a specific in all cases of vomiting occurring in infants. It is present in cow's milk, and may be freely given, as it has no toxic properties. Vomiting is due to overfeeding, in which case the citrate will have a sedative action on the stomach. It is also due to underfeeding, which induces a spasmodic contraction, and consequent rejection of its contents. In this case the salt hastens digestion, and enables the infant to make use of food. In some breast-fed children there is gastric irritability, which may be controlled either by mixed feeding or changing to cow's milk, with the addition of sodium citrate.

The action of the salt in infants is antiemetic. Its effect is generally very prompt. Added to sterilized or humanized milk it is a preventive of infantile scurvy. It merits an important place in infant therapeutics.

SOME "DONT'S" IN THE USE OF SALVARSAN.

SCHAMBERG and GINSBERG in the *Journal of the American Medical Association* of February 4, 1911, contribute a paper with this title. They tell us that the most recent advice from authoritative sources as well as our own experience favors, in general, the employment of salvarsan by intravenous injection.

1. Don't use salvarsan in myocarditis, in advanced cases of tabes dorsalis and general paresis, in nerve syphilis affecting vital centers, in grave kidney disease, in cachectic and debilitated persons (unless the condition is due to syphilis), in aneurism, in optic neuritis, and in persons with lesions (such as gastric ulcer) in whom increased blood-pressure may produce hemorrhage.

2. Don't use intravenous injections of salvarsan until you have fully qualified yourself and possess a detailed knowledge of the technique. Deaths have occurred and more will occur from unskilful administration.

3. In the preparation of the drug for intravenous use, don't use a solution made with common salt or undistilled water (such as is often supplied in hospitals), but use a specially prepared sterile physiologic salt solution made with chemically pure sodium chloride; otherwise you may find it impossible to obtain a clear solution.

4. Don't under any circumstances inject into the veins a solution which is not perfectly clear; a flocculent or cloudy liquid may produce alarming symptoms of collapse or even death.

5. Don't use a solution any more alkaline than is absolutely necessary to secure a clear solution.

6. Don't inject the salvarsan into the veins without previously running in physiologic salt solution; if the needle is not in the vein you will infiltrate the surrounding tissue with the salvarsan solution and cause subsequent inflammation and unnecessary pain.

7. Don't infuse the solution into the vein too rapidly; it is best to have a needle of such a caliber as will require eight minutes to introduce 200 Cc. of fluid. With the gravity apparatus, the rapidity of inflow can also be governed by the height of the receptacle.

8. Don't infuse a cold solution; the liquid should be about the temperature of the blood.

9. Don't use "glass pearls" in the mixing jar as is often recommended; we have found that minute particles of glass chip off which might cause embolism.

10. Don't use a routine dosage of the drug; the dose should be gauged according to the weight of the patient and the character of the condition to be treated.

11. Don't employ intravenous injections in your office or in a dispensary. The patient should be treated in a hospital and put to bed and carefully observed for a period of not less than three days.

12. Don't persist in the intravenous injection if the patient should show signs of collapse during the administration, but stop at once.

ECZEMA CAPITIS.

In the *British Medical Journal* of January 14, 1911, ATKINSON tells us that he has lately had a case of the above troublesome complaint in a girl aged twelve years, with no previous history of seborrhea. The whole of the scalp was affected when he first saw the child, and the head was covered with scab, which, when removed, left a raw, inflamed surface, from which serum freely oozed. The disease extended behind both ears, and fissures had developed. Both meatuses were attacked. No other parts were affected. He put the child on cod-liver oil, and then tried one remedy after another with failure to cure. Many of the things he tried made it worse. He clipped the child's

head with clippers at least a dozen times, and often got a certain amount of improvement; but then came a relapse, and in a few days the case was as bad as ever.

Finally he made up an application consisting of:

Acid. salicylic., ʒj;
Ol. eucalypti, ʒj;
Ol. olivæ, ad ʒvj.

This he rubbed into the scalp twice a week. A speedy and, so far, permanent cure has resulted. He attributes it to the eucalyptus oil, as he had tried salicylic acid in ointment and in lotion before. The ears he syringed with a carbolic solution of 1 in 80, and then applied the above oil to the meatus by means of a pledget of cotton-wool on a probe. He also dipped a strip of gauze in the oil and placed it behind each ear to prevent the ear from touching the scalp.

THE SLOWNESS OF CERTAIN STOMACHS TO EMPTY.

It has been noted that ptosed stomachs with ptosis of the pylorus sometimes manifest considerable slackening in the evacuation of their contents without any anatomical or clinical causes other than the ptosis to explain it. This retardation in the process of emptying may exist in stomachs which fill normally, and in which peristalsis is normal. Chilaïditi, of Vienna, has been drawing the attention of the Société de Radiologie Médicale de Paris (*Bull. et mém.*, No. 19, 1910) to some considerations which, in his opinion, may not only explain this condition but also help to clear up the pathology of some affections of the duodenum, including ulcer. He insists particularly upon the point that for the proper discharge of the normal functions of the orifice of the stomach it is essential that there should be a condition of acidification above the pylorus and of alkalinization below. Normally, the stomach contents being acidified by the gastric juice, the pylorus opens to discharge a portion of them, which passes into the duodenum. The pylorus is closed again immediately, and is not reopened until the alkalinization of the duodenal contents has taken place. But an abnormal anatomical configuration of the gastroduodenal tract interferes with the rhythm of the process.

In a ptosed stomach with ptosis of the pylorus, the greater part of the chyme propelled into the upper portion of the duodenum—the ultra-pyloric portion, which is considerably in evidence after the contraction of evacuation, and which has been named by Holzknecht the "duodenal bulb"—may be arrested in that bulb for a longer time than normally. This arrest is due to the fact that the ptosed stomach and pylorus carry away the mobile portion of the duodenum, while the fixed portion, which commences as the summit of the subhepatic angle, remains in place, resulting in a protraction of the duodenal bulb. Further, owing to the fixity of that angle and the lowered pylorus the chyme remains in the bulb, and is not immediately propelled by the contractions into the middle part of the duodenum. The upright instead of horizontal position of the bulb, and the lack of tonicity in its walls, have also to be reckoned with. Thus there is a delay in alkalinization by the bile and pancreatic juice, and consequently the pylorus remains closed in spite of the preparation and sufficient acidification of the stomachal chyme above. The eventual emptying of the bulb may take place because of the action, tardy though it be, of the alkaline juice of the glands of Brunner, or because the muscles of the portion have not lost the whole of their tonicity, or because massage and movement and abdominal compression have assisted the passage of the aliment.

The author believes that the very satisfactory results which have been noted in accelerating the stomach evacuation by making the patient lie on the right side for four hours after the principal meal are really due to a movement of these duodenal contents which permits the reopening of the pylorus. The weight of the chyme when the patient is in such a position assists its progress. Massage, also, although it should never be increased with

the idea of forcing the pylorus, may have good results when directed upon the duodenum. He emphasizes the point that ulcer of the duodenum may arise as a result of this special duodenal configuration. It is the first or juxtapyloric portion of the duodenum, rendered anatomically abnormal by elongation and atony, which holds the stagnant acidified chyme, and certain of the acids may readily have a serious effect upon its altered coating. This needs to be considered in relation to the fact that, in 95 per cent of the cases of duodenal ulcer, the ulcer occupies a position in the first portion of the duodenum, and in the majority it is found in the immediate neighborhood of the pylorus.—*British Medical Journal,* Jan. 14, 1911.

"606" TO DATE.

Under this broad title the *British Medical Journal* of January 14, 1911, gives a summary about salvarsan or "606." As it well says, the birth, infancy, and early youth of "606" have been accompanied by so many novel features and the methods of employing the remedy have varied so much, almost from day to day, that a rapid review of the present situation will not be out of place.

It is usual in the medical world—or rather it has been usual—for new methods and new remedies to be worked out carefully, both clinically and in the laboratory, before they are communicated to the outer lay world. In the present instance, however, this excellent procedure has not been followed. The lay press started "booming" the remedy in an unprecedented manner, and the result of all this has been that the strangest opinions have been formed as to the use and effects of the new remedy. One is that "606" will certainly cure syphilis in one injection. This, of course, has already been shown to be erroneous. And it may be stated at once that Professor Ehrlich apparently never expressed the opinion that "606" would cure in one injection, though that was aimed at. It is necessary, too, to insist on the fact that no one regrets more than Professor Ehrlich that matters were taken up by the lay press in the way they were. His laborious investigations as a scientist are too well known to need recapitulation in this place. Moreover, the world is under a great debt of obligation to him and Dr. Hata, and their collaborators, for a remedy that has already shown itself of great value in the struggle against one of the worst enemies of the human race, the Treponema pallidum.

In the short time that has elapsed since "606" was first synthetized and experimentally employed in animals, the remedy has rapidly undergone improvements and successively become "606 ideal," "606 hyperideal," and now "Salvarsan." The great improvement has been in the direction of solubility, facilitating greatly its use.

Pari passu with these improvements, the methods of employing "606" also have been rapidly developed. The original methods have given way to new ones, more simple and less painful, and the manipulations have been reduced and simplified as far as possible. The rather complicated early methods, leading to overhandling and therefore to risks of sepsis, have given way to more simple ones. Wechselmann's method, for instance, has been abandoned, and others, too, which were really mediocre in their conception, have gone by the board. In some instances necrosis of tissues occurred some weeks after the injections. The injections, moreover, were very painful.

Another point which must be considered is the reaction of the solution employed as an injection. It has been variously recommended that this should be neutral, alkaline, or acid. The acid injection was at first greatly objected to by those who were wedded to the original complicated method and who had not tried the other. Duhot of Brussels and Traege of Freiberg in Breisgau, however, have used "606" as an acid intramuscular injection with excellent results, and with less discomfort to the patient than was produced by the original way of preparing the solution for injec-

tion. Moreover, the acid method is extremely simple, requiring little manipulation. Indeed, there is no pain at the time of injection and not for a few days, so that this method has been carried out in the consulting-room, provided, of course, the patient went home to bed at once and stayed there for some days. But some patients have not even carried this out, and apparently have not experienced any bad effects. This course is not recommended, however, and it is far better to have the patient under control in bed.

Another great advantage of this method is that only small quantities of fluid need to be injected into the muscle; in Duhot's case, for instance, about 6 Cc. or so, half this quantity being injected on one side and half on the other, not too deeply, into the muscle and high up on the buttock, thus avoiding the sciatic nerve. This intramuscular acid injection should be done in two movements, the needle being first introduced and the solution injected by a second movement, as in the case of insoluble preparations of mercury. This is to avoid sending any of the solution into a blood-vessel.

Still another method of employing "606," in intramuscular injections, is in oily suspension, as advocated by Kromayer, and by Lafay and Lévy-Ring. The method is simple and answers well in avoiding pain. At first it was objected that the remedy introduced in this way was too slow in its action. But now observers are coming round to it, and Professor Ehrlich is said to look on it as an alternative for the intravenous method, in which mode of administration the remedy is rapidly carried through the body and also rapidly eliminated, whereas in intramuscular oily suspension the effect is prolonged. Intramuscular injection in ordinary solutions occupies an intermediate position, and the ordinary intramuscular solutions may turn out to be the best in the long run, although at the present moment the intravenous method is the favorite in some quarters, and is indeed the method recommended for salvarsan, the trade name of "606." These alternative modes of introducing the remedy into the body must be taken into account, but in all probability the three methods will ultimately all be found of use according to circumstances. Moreover, in the intramuscular method larger doses can be used than is the case for intravenous administration. And of the intramuscular modes, the acid solution method is so readily applicable that it must play an important part in the future.

The subcutaneous or true hypodermic method appears to be practically given up. It is important to emphasize the distinction between the hypodermic method and that by intramuscular injection, the former term being but too frequently employed when the latter is really meant. This is very misleading, and in the case of mercurial injection has in the past led to complications.

The intravenous injection can be carried out in various ways. Schreiber employs a syringe on the principle of Dieulafoy's for tapping, except, of course, that the instrument is used in the reverse way. It is a simple plan if the solution has been carefully prepared. Weintraud attaches the rubber tube directly to the vessel containing the solution. Emery has devised another method which reduces the amount of handling and is ingenious; in this the solution is filtered, so that the risk of a solid particle passing into the vein is avoided. This has happened, but apparently with only temporary trouble. The points in the intravenous method are: To be sure the needle is in the lumen of the vein, to avoid injecting air, and to see that the solution is perfect. In some instances the solution has, in error, been injected around the vein. This is one drawback of the method; another is the risk of thrombosis of the vein. After the intravenous injection there may be vomiting, diarrhea, and a rise of temperature, but altogether these complicating symptoms are evanescent.

The intramuscular injection of the acid solution has already been referred to. As to the solution prepared by the addition of NaHO, that is injected slowly into the glu-

teal region. The quantity used is larger than in the case of the acid solution, and the sciatic nerve is more likely to be interfered with. The pain and swelling which follow the NaHO solution are greater in the usual run of cases than with the acid solution, but the personal equation for pain must be considered. In intramuscular injections the point to bear in mind is to make the injection slowly in order to avoid dissociating the muscular fibers roughly. The intramuscular injections in oily suspensions are carried out in two movements, as for insoluble preparations of mercury.

THE ANTIHEMOLYTIC ACTION OF ARSENIC.

GUNN and FELTHAM in the *British Medical Journal* of January 2, 1911, report a research upon this subject. The conclusions drawn from these experiments are that arsenic, whether in the form of sodium arsenite or sodium arsenate, exerts on the red blood-corpuscles an action antagonistic to that of certain hemolytic agents. The experiments, therefore, afford additional proof in favor of the view that a protective action on the formed red blood-corpuscles against normal or abnormal hemolytic processes may, in part at least, account for the as yet imperfectly explained benefit which results from the medicinal administration of arsenic in blood diseases.

ARSENIC AND MALARIA.

RUDOLF FLEXSEDER *(Wiener klinische Wochenschrift,* No. 36, 1910) describes a case of malarial infection treated with enesol and with Ehrlich's preparation, "606." The patient was a man thirty-nine years of age, who was twice treated at the II Medical Clinic in Vienna, the first time from November, 1909, to January, 1910; the second time from July 6 to July 28, 1910. On the first occasion the patient came complaining of rigors, for which he had been treated with quinine. No malarial parasites were, however, found in the blood; there were a few normoblasts. The absence of malarial parasites in the blood, the irregularity of the attacks of fever, which were not accompanied by sweating and, later on, not by rigors, the insignificant amount of enlargement of the spleen, which was present, all united against a diagnosis of malaria. On the other hand, there was a history of syphilis, Wassermann's reaction was completely positive, and the liver was much enlarged. The diagnosis, therefore, was of an acute form of diffuse syphilitic hepatitis, and this was confirmed by the prompt effect of potassium iodide, and still more by the effect of a course of twenty injections of enesol. At the end of this course the Wassermann reaction was negative. Blood films were made at the time and stained by Leishman's stain, but these, by an accident, were not examined until later, when the patient again presented himself. It was then found that typical Laveran's crescentic bodies had been present in large numbers, and it was clear that the case had been one of malignant malaria.

After his discharge from hospital the patient remained well until he was bitten by mosquitoes and developed typical tertian fever, for which he came for treatment. Malarial parasites were now present in the blood in large numbers, but no crescentic bodies; eosinophiles were almost absent from the blood. Wassermann's reaction was again completely positive. Both liver and spleen were enlarged, the spleen more enlarged than before. An injection of 0.3 gramme of Ehrlich's preparation ("606") was made, with an apparently completely successful and surprisingly quick result. No more malarial attacks occurred from the third day after the injection, and the liver and spleen went back in size. Wassermann's reaction, however, remained positive, though of medium strength only, and the later history of the patient showed that malarial parasites reappeared in the blood, and attacks of tertian fever recurred.

The question as to whether the positive Wassermann's reaction in the first illness should be taken to indicate a syphilitic as well as a malarial infection is decided in the negative. Boehm found Wassermann's re-

action positive in 35.5 per cent of non-syphilitic cases, and the present case is another instance of the same thing. The treatment in the first attack led to a permanent cure of the pernicious malaria, as shown by the freedom of the blood from crescentic bodies in the later illness and the purely tertian type of the second illness, which started after a fresh infection. Wassermann's reaction was, therefore, completely positive when the tropical parasites were present in the blood and became negative on recovery, while during the tertian fever the reaction was strongly positive, but became much reduced in strength when the disease was still present, but in a latent stage.

The author therefore finds (1) that eosinophilia and mononucleosis of the blood may be signs of a latent malarial infection. The number of eosinophiles is in malaria dependent on the measure of the erythrolysis. (2) Wassermann's serum reaction may be completely positive both in tropical and in tertian fever, and can be taken, in conjunction with the blood condition, as an indicator of recovery or otherwise. (3) Arsenic is a specific poison to the malarial parasite, and protracted intramuscular injection of enesol can bring about complete recovery from tropical fever. (4) Ehrlich's preparation, injected during an attack of benign tertian fever, led to a cessation of attacks, but not to permanent recovery. In either form of malaria, however, injections of arsenic are to be tried when there is an idiosyncrasy against quinine.—*British Medical Journal,* Jan. 2, 1911.

AN EASY AND PAINLESS METHOD OF REMOVING ADHESIVE PLASTER.

Beardsley writes in the *Journal of the American Medical Association* on this topic, pointing out that such a frequent and simple procedure as the removal of adhesive plaster from the skin of a patient is not infrequently accompanied by considerable pain and discomfort. Especially is this true if the plaster has been placed over hairy surfaces, or if the hair has grown subsequent to the application of the plaster. The usual methods of aiding the removal of the plaster by the use of benzine, alcohol, and peroxide of hydrogen are not particularly effectual, while in themselves these agents often add to the patient's discomfort.

The author discovered by accident that oil of wintergreen when applied to adhesive plaster removes completely the adhesive elements in a very short time, and he has since found this agent a most useful one for this purpose. It is necessary only to use a small amount of the oil, which is applied directly to the plaster and easily spreads itself throughout the adhesive material. As far as he is aware, this agent is not in common use for this purpose, and as the aim of a physician or surgeon is to relieve instead of causing pain it seems well to call the attention of the profession to the value of the method. When extensive areas of plaster are to be removed the application of an ointment of adeps lanæ hydrosus with 10 per cent of oil of wintergreen incorporated is even more useful than the oil alone.

DIRECTIONS FOR THE USE OF ALBUMIN MILK.

Abt writing in the *New York Medical Journal* of January 2, 1911, states that albumin milk (Eiweiss Milch) for feeding sick infants has attracted attention in America, as it has in nearly every part of the world. The reports from various quarters lack in uniformity; some are favorable and laudatory, others less favorable. Professor Finkelstein thinks that the unfavorable results are undoubtedly due to improper preparation of the food or to some error in technique of its administration.

If one will spend some time at the Kinder Asyl in Berlin with Professor Finkelstein and his assistants he will be impressed with the gratifying results which are obtained. It is only stating the fact to say that in this institution this plan of feeding infants is successful in nearly every case. Sick and premature infants show remarkable improvement with this diet. It is note-

worthy, too, that the mortality-rate among the many infants treated in this hospital is unusually low. One will rarely see an asylum where the infants look so well fed and respond so rapidly to dietetic treatment.

For the sake of completeness, the author repeats the directions for preparing albumin milk. The nurse in the milk laboratory of the Kinder Asyl proceeds in the following manner: She adds one tablespoonful of essence of pepsin to a quart of milk. (A junket tablet, elixir of rennet ferment, or any one of the various digestants used to make whey would answer the same purpose.) She then places the dish containing the milk in a water-bath, and the milk is heated to about 100° F. After the milk has curdled, she stands it aside for fifteen minutes longer, then pours off the whey. The junket or curd is then put into a clean muslin or cheese-cloth bag, tied at the top, hung up, and is allowed to drip for two hours. By this time the junket is free from whey. She now places the junket in a hair-sieve, and with a small potato-masher gently breaks up the curd, adding boiled water little by little until enough has been added to make a pint. The junket, with addition of water, should be strained. She repeats this process of passing the curd through the sieve six or seven times, until the mixture is perfectly smooth and free from lumps. She now adds one pint of previously boiled buttermilk and one per cent of malt sugar in some form (Nähr Zucker), and the preparation is ready to be bottled.

It is apparent that if the same results are to be obtained in other quarters the milk must be properly prepared and the technique of its administration and the indications for its use thoroughly understood. The author appends herewith minute directions which have just been issued by Prof. H. Finkelstein and Dr. Ludwig F. Meyer, and in compliance with their suggestion he is transmitting them to American physicians who are interested in this therapy.

Albumin milk prevents abnormal fermentation in the intestinal tract, (1) of the low content of easily fermentable milk sugar; (2) of the low content of whey salts (the latter favor fermentation); and (3) of the comparatively high proteid content (the latter counteracts fermentation). Upon standing, a precipitate is likely to form in the bottle containing the albumin milk. Before feeding the bottle should be warmed to the body temperature and again shaken. (Overheating is objectionable.) The milk should be kept in a cool place. If thus taken care of it preserves its quality well for at least five weeks.

Albumin milk contains 3 per cent proteid, 2.5 per cent fat, from 1 to 1.5 per cent of milk sugar, from 0.4 to 0.5 per cent of mineral salts. The mixture contains 450 calories to each liter. In addition, one per cent of malt sugar (Nähr Zucker) is added.

Albumin milk is indicated in all infantile disorders which are associated with diarrhea, especially in those cases in which breast milk is not obtainable. It is also valuable in cases of dyspepsia, enterocatarrh, cholera infantum (intoxication, Finkelstein), atrophy (decomposition, Finkelstein).

As these diseases are accompanied or have been preceded by diarrheal attacks, the albumin milk is a valuable diet. The bowel movements soon improve, but the child does not at once gain in weight. As soon as the evacuations have improved, or have become less frequent, sugar in some form should be added. This should not occur too late; certainly at the end of eight days, if not before, sugar should have been added, even if the number and the appearance of the stools leave something to be desired.

The albumin milk is given in increasing quantities until the stools become less frequent. Saccharin may be added at first, so as to make the food more acceptable to the infant's taste. Children over three months of age may have starch in some form added to the albumin milk. The substance to be added is to be stirred up in a small quantity of water (two ounces), boiled, and then added to the milk.

The use of milk sugar or cane sugar is

not advisable, since these lead readily to relapses. Much more certain in their action are the maltose preparations, or any of the dry malt preparations which do not contain milk in some form.

At first one should add only a few grains of malt sugar to a three-ounce mixture, but the quantity may be increased from day to day, particularly if the child does not increase in weight, adding one per cent at a time. It is not advisable or necessary, at any time, to add more than four per cent of sugar to the entire mixture. Children over three months will sometimes need the addition of starch in the form of flour; two or three drachms of the latter may be added to an entire day's feeding.

In cases in which the bowel movements continue thin and frequent, or contain mucus, even after eight days have elapsed, one should proceed to make a daily increase in the quantity of albumin milk, and after the lapse of eight days more begin to add sugar. Recovery may be confidently expected, though the course of the illness will be somewhat protracted.

It sometimes happens that during the period of convalescence, after improvement has once set in, an apparently unfavorable condition occurs, characterized by frequent and thin stools. In these cases it may be said with great emphasis that one should not diminish the quantity of the albumin milk or the sugar, but should continue with the same dosage and quietly wait. After a short time, if this suggestion is followed, improvement sets in.

In some of these cases the disturbance is not primarily a digestive one, but it seems to be associated with an infection in some other part of the body. Thus, for example, an intercurrent rhinitis, or bronchitis, will almost invariably cause a standstill or loss in weight, with more or less pronounced digestive disturbance.

No error can be made which will place in greater jeopardy the results of albumin milk feeding than a too protracted underfeeding. In severely atrophic babies one or two days' reduction in diet will answer every possible therapeutic purpose.

In cases of dyspepsia, feed the baby tea sweetened with saccharin for six hours. Begin by feeding 300 grammes (ten ounces) of albumin milk, divided into five or six feedings. Tea and saccharin may be given between feedings, as seems indicated.

In the cases of so-called enterocatarrh and cholera infantum, a tea diet should be given for twelve to twenty-four hours, then for one day albumin milk, teaspoonful ten times daily, with tea and saccharin in the intervals. In a day or two, as the little patient shows improvement, the albumin milk may be increased fifty grammes (from one and one-half to two ounces) each day, when the stool becomes less frequent; then increase the albumin milk 100 grammes (three ounces) each day, until eventually the baby is receiving from 180 to 200 grammes (from six to seven ounces) to each kilogramme (2.2 pounds) of body weight in twenty-four hours. Sugar and flour may be used in the manner which has already been described. The number of meals should gradually be reduced to five or six each day.

In cases of atrophy (decomposition, Finkelstein) proceed as in cases of dyspepsia; increase food as rapidly as is possible, even if the bowel movements are not perfectly satisfactory in appearance. Sugar should be added comparatively early in the treatment, particularly as the dangers of underfeeding in these cases is paramount.

Particular emphasis should be laid upon the observation that during the first few days of treatment with albumin milk the loss of weight may continue and the general appearance does not improve.

In many cases larger quantities of albumin milk may be given than have been herein indicated, and in some cases the increase may be more rapid.

The entire quantity of albumin milk should not exceed in any case more than one liter a day. After diarrhea has stopped older children may have the usual additional food (soup, vegetables, stewed fruit, and cereals).

Children over three months of age will

usually require from six to eight weeks of treatment with albumin milk. Those under three months will require about ten weeks of treatment. At the expiration appropriate milk mixtures should be tried.

To wean a baby from albumin milk it is recommended that all of the bottles be taken away at once, and that the substitute feeding be instituted. If a relapse should occur, the albumin milk is again indicated.

THE INCOMPATIBILITY OF ANTIPYRIN, CALOMEL, AND SODIUM BICARBONATE.

The *Journal of the American Medical Association* of January 28, 1911, states that an inquiry has been received from a correspondent concerning the incompatibility (thought to be dangerous) of a mixture of antipyrin, calomel, and sodium bicarbonate in the following prescription:

> Mild mercurous chloride, 2 grains;
> Antipyrin, 6 grains;
> Sodium bicarbonate, q. s.
> Mix and divide into 12 powders.

On account of lack of authoritative information on the subject the matter was referred to the Association laboratory, which made the following report:

The literature contains little definite information concerning the incompatibility of a mixture of these substances.

Holland states that antipyrin is incompatible with many substances, among which calomel and sodium bicarbonate are mentioned, but nothing is said concerning its incompatibility with a mixture of the two salts. Another writer reports that antipyrin is incompatible with the chloride of mercury, while another declares that antipyrin is almost universally incompatible. It is frequently stated that antipyrin is incompatible with calomel, mercuric chloride, mercurous oxide, and metallic mercury being formed. This assertion, which is made by Werner, needs experimental confirmation. One writer says that there is but little danger in dispensing calomel and antipyrin when the former is prescribed in small doses, as but a small part of the calomel (one-tenth or less) is converted into corrosive sublimate.

As it seemed worth while to obtain some experimental data on the point involved, a mixture was prepared having the following composition:

> Calomel, 2 parts;
> Antipyrin, 6 parts;
> Sodium bicarbonate, 12 parts.

By qualitative tests it was demonstrated that when this mixture is treated with water a bluish-gray residue remains undissolved and a soluble mercury salt is found in solution. The composition of the insoluble residue was not determined, but there was considerable evidence that it is largely composed of metallic mercury and unchanged calomel. If the prescription powder be treated with an excess of 0.2 per cent hydrochloric acid the reaction noted above does not occur; no mercury is found in solution and the calomel appears to be unchanged. If a mixture of calomel and antipyrin be suspended in water no reaction appears to take place at once. The calomel retains its natural color and no mercury salt is found in the solution. If to this aqueous solution of antipyrin containing suspended calomel some sodium bicarbonate be added, the calomel immediately changes color and the original mixture becomes of the same appearance as does the original mixture when treated with water.

Preliminary determinations indicated that from one-sixth to one-fourth of the calomel present is converted into a soluble mercury salt. If the entire quantity prescribed be administered the patient would receive a soluble mercury salt equivalent to from 1/3 to 1/2 grain of corrosive sublimate.

The incompatibility of the mixture will be apparent to any physician who will take the trouble to pour a few drachms of water on a small portion of the powder; and that it is dangerously incompatible is shown by the large proportion of the mercury salt which is rendered soluble. If the mixture be administered in a capsule the danger would be lessened somewhat, as the acidity of the stomach would tend to neutralize the

sodium bicarbonate, on the presence of which the reaction appears to depend. Since medical and pharmaceutical text-books contain so little definite information concerning the incompatibility of this combination, too much blame should not be attached to those who have prescribed it and to pharmacists who have filled such prescriptions. However, if used at all, it should be in the most cautious dosage.

THE INFLUENCE OF CHLOROFORM WHEN REPEATEDLY ADMINISTERED IN SMALL DOSES.

CLARK contributes to the London *Lancet* of January 21, 1911, the results of a research on this subject. He says that in reviewing the results of his experiments he inclines to the belief that he has proved that given in the form of small doses, frequently repeated, chloroform is a much more dangerous drug than when given in a single much larger dose. The first doses given appear to lower the vitality of the tissues, so that the later doses have a more marked action.

Idiosyncrasy or a number of undetermined factors appear to influence the action of chloroform on animals, and we find enormous variations between the shortest time and the longest time an animal has lived during the administration.

In all the animals examined the liver appeared to have suffered greatly, although, as was to be expected, the most marked degeneration was found where the anesthetic was given through the stomach. When the drug was inhaled the kidneys seem to have suffered more uniformly than in the other cases, and although the degree of degeneration was not always great, the difference in degree between kidney and liver degeneration was not nearly as marked as when the chloroform was given in either of the other ways.

Very great changes were seen almost uniformly in the spleen even in the animals that died in a few days. The evidence of extensive hemolysis was most marked. The large-sized phagocytes were, in many cases, distended with dead corpuscles, and in other cases contained a pigment which gave a positive stain for iron, the masses of such pigment apparently lying loose in the spleen. The large size and weight of this organ all demonstrated its increased activity. The organs in which this increased activity was least manifest were those removed from the rabbits which received the administration through the stomach much diluted with water. Here the average size of the spleen was small and the weights corresponded. The average weight was only 0.17 gramme above the normal, whereas in the other experiments the increase was 0.46 gramme when chloroform was inhaled and 0.59 gramme when it was injected.

When chloroform was inhaled it seemed to have a more marked action on the heart muscle than when it was given through the stomach or injected. Fat was not detected in the hearts examined.

In connection with the administration by the stomach, it is of interest to note that the amount of chloroform given in each administration was comparable with the quality described by Sir James Crichton-Browne as being present in one linseed, licorice, and chlorodyne lozenge. The average weight of a full-grown rabbit is about 2 kilogrammes, while 70 kilogrammes represents the weight of a full-grown man. Thus 30 to 40 of these lozenges per diem in a man gives the same proportion of chloroform to body weight as in the experiments, and correspondingly less in a woman or a child. Many rabbits are very susceptible to the action of chloroform, but even in the one example where the animal lived for a long while the liver changes were of a very striking description. The lesions found in rabbits closely resemble those reported in fatal human cases of chloroform poisoning by Stiles and McDonald and others.

The mortality among rabbits which have been anesthetized through the respiratory passages and the changes in the heart, liver, and kidney found after death emphasize the danger of repeated administration by this method, even when the anesthetic is only

exhibited for very short periods. Clark concludes:

1. Chloroform repeatedly administered by the respiratory passages, subcutaneously, and by the stomach in small doses rapidly kills rabbits.

2. The liver shows degeneration of the cells sometimes so marked that the whole center of the lobule is broken down into débris. The cells in the center of the lobule are early affected, those further out later. Fat is always present, generally in large quantities.

3. The kidney suffers to some extent, but relatively more when the chloroform is inhaled than when injected or given by the stomach. Fat is occasionally found in degenerated cells.

4. The spleen shows intense congestion, the sinuses being packed with red blood-corpuscles. Along with the red corpuscles an orange-colored pigment is generally present which reacts to the stain for iron. A large number of very large phagocytes are present in most cases. The average weight of the spleen was 0.46 gramme heavier than the controls when chloroform was inhaled, and 0.59 and 0.17 gramme heavier when injected and when given by the stomach respectively.

5. Degenerative changes were observed in the cardiac muscle. Fat was not observed in any of the hearts examined.

A CASE OF ACONITE POISONING.

In the *Lancet* of January 21, 1911, INGLIS reports the case of a married woman, aged forty-five years, a multipara, who had suffered from rheumatism, shortness of breath, and swollen feet. She was at the beginning of the menopause and had had two or three floodings. Lately she had been upset by family and money matters, which brought on neuralgia and aggravated gloomy thoughts of impending evil. To save money she went to a London hospital, where she was supplied with a mixture and liniment. The latter was in an ordinary clear medicine bottle, but marked "The Liniment" on a red poison label. Next morning, not feeling well, she carelessly drank by mistake about three ounces of the liniment, not noticing the label, it being turned toward the wall. At once she recognized that a mistake had been made from the taste of camphor (most official liniments contain it), followed by a hot tingling feeling in the mouth, then numbness. A sick giddiness crept over her, with gastric pains, and she collapsed on the floor. She sent to a druggist for ipecacuanha wine, and he administered a strong emetic. But by this time most of the poison had been absorbed and very little of it was returned. Feelings of sickness continued, and a violent attack of clonic convulsions supervened.

There was a delay in getting the medical man, who found the patient lying on the floor speechless, cold, pale, skin moist, pulseless, respirations very faint and irregular, and the pupils dilated and insensitive. The temperature was 96.6° F. There was no ptosis. At intervals she was able to gasp out that there was terrible gastric and abdominal pain and that all the body was alive with irritation and prickling of the skin, succeeded by numbness. The latter fact, together with the pallor and damp skin, pointed to aconite poisoning to the exclusion of belladonna. Three times after attacks of clonic convulsions she appeared to be dead, but when they ceased the mind was clear and unaffected. As ipecacuanha (a cardiac depressant) had been given, it was thought advisable only to give one mustard emetic to save the enfeebled heart. The head was kept low, the feet were raised, a sinapism was placed over the heart, and hot bottles and flannels were applied to the lower extremities and abdomen. Strychnine and digitalis were given hypodermically, and brandy was injected per rectum. Artificial respiration was unceasingly kept up. After an anxious six hours the breathing became stronger, an irregular intermitting pulse could be felt at the wrist, whilst the body warmth slowly returned. A little coffee and brandy were swallowed and retained. So the crisis passed. There was no purging at the time, but subsequent actions of the bowel were hard and gritty,

possibly from particles of the powdered aconite root.

The quantity of aconite taken may be roughly estimated as sufficient to kill six persons.

THE USE OF SCARLET RED IN THE TREATMENT OF ULCER.

RYERSON writing in the *Canadian Practitioner and Review* for February, 1911, tells us that when an ulcer becomes aseptic, has a clean granulating base and healing edges, anything that will tend to reduce the time required for the epithelium to grow and cover the surface will be gratefully appreciated by the profession. In many cases of large ulcers and extensive burns skin-grafting has to be resorted to. In the class of cases in which one hesitates to submit the patient to an anesthetic and a skin-grafting operation, the period of healing may be very materially shortened by the application to the edges of the area of an ointment of vaselin containing 8 per cent of scarlet red.

Scarlet red is an aniline dye, which was discovered in 1882. It is a sodium salt derivative of disulphonic acid, costing sixty-five cents a pound, or about ten cents an ounce. It is made up into an ointment with a vaselin base, the strength varying from 2 to 20 per cent, usually 8 per cent. In its preparation the scarlet-red powder should be rubbed up first with a little olive oil or castor oil before being mixed with the base. Instead of vaselin, boracic, zinc, or any other bland ointment may be used for the base. Sterilization causes the ointment to become darker in color.

The ulcer should be washed with a solution of boracic acid or any other mild antiseptic and the edges dried. Solutions of bichloride of mercury or carbolic acid are to be avoided, as they kill the new young epithelial cells.

The scarlet-red ointment is then applied to the edges of the ulcer, either on perforated old linen or with a camel's-hair brush. In large ulcers the surrounding skin is liable to become irritated from repeated applications, so it is well to cover this with some boracic or zinc ointment to within one centimeter of the edge. In small ulcers the scarlet-red ointment is applied to the whole base and edges.

This dressing is left on for twenty-four hours, when the area is again washed, and a boracic ointment (quarter strength) dressing applied. The scarlet red is used again at the end of another day, and so on alternately. It has been found that the continuous application of the scarlet-red ointment is too irritating.

Fischer, of Bonn, published a paper in 1906 on "Experimental Generation of Atypical Epithelial Proliferations." He found that he could produce increased mitosis in the germinal layer of the skin, in the hair follicles and the glands by injections of scarlet red in olive oil. His findings were corroborated by Helmhotz and Werner. Scarlet red was used first therapeutically in 1908 by v. Schneider, and since then has been given many tests in Germany. In Davis's paper sixty cases are reported, in which the results were gratifying. In this list are included cases of skin-grafting, burns, ulcers (simple, varicose, and specific), and bed-sores.

Among many patients who have come under the observation of the author at the Toronto General Hospital and Hospital for Sick Children, he mentions a few as examples of the types of cases in which he has found scarlet-red ointment satisfactory. Indolent ulcers over the tibia, either traumatic, varicose, or syphilitic, respond rapidly. Large granulating wounds resulting from injury, in which the sloughs have separated and the base is clean and aseptic, are especially well suited to this treatment. Burns, when they have cleaned up and are healing, also do well under it.

The author makes the statement that he has found that ulcers, burns, and infected wounds clean up more rapidly by applying compresses of aluminous acetate (1 per cent) solution than those of boracic, bichloride, or other antiseptic solutions.

In conclusion, the author has no hesitation in saying that scarlet-red ointment materially shortens the healing period of ul-

cers, burns, and granulating wounds. No bad effects are encountered if ordinary care is taken not to apply it too often or too strongly.

LOCOMOTOR ATAXIA AND THE RESULT OF SPECIFIC TREATMENT.

The *Cleveland Medical Journal* for January, 1911, contains an article by BILLINGS on this subject. He reports the cases he has studied, and says that the specific treatment used in the majority was mercury. Twenty-five had deep intramuscular injections of mercury under the personal supervision of the author. Four others had the intramuscular injections under their physicians, and in three the treatment was by inunction or mercury by mouth. The form of mercury used for the injections was usually corrosive sublimate in the following solution:

℞ Hydrargyri chloridi corrosivi, gr. 15;
Acidi phenici, gr. 15;
Sodii chloridi, gr. 30;
Aquæ destillatæ, oz. 2.
Misce.

Of this solution 10 minims (equal to gr. 1/6 mercuric chloride) to 20 minims (equal to gr. 1/3) was injected deep into the gluteal muscles for twenty to twenty-five times during a period of about two months. In some patients a suspension of a salicylate of mercury in liquid petrolatum was used in the dose of ½ to 1 grain for twenty to twenty-five injections. The succinimide of mercury in the form of hypodermic tablet gr. 1/5 to gr. 1 has been used. The corrosive sublimate in sterile olive oil is objectionable because the mercury is too rapidly absorbed and may salivate the patient. The rapidity with which injections may be given will depend upon the patient and upon one's ability to manage him. Practically absolute rest in bed during the injection treatment is a necessary part of it. When so confined, the injections may be given every day or every second or third day. Some patients complain much of pain, and others not at all. The injections of the corrosive sublimate must be given deeply. If given subcutaneously only, it may cause coagulation necrosis of the skin, with resulting slough of skin and underlying tissue. Salivation rarely occurs even with daily injections. If an attempt is made to give the iodides coincidentally, salivation is more apt to occur. If the patient is permitted to go about, the periods between injections must be increased, and sometimes not more than one or two a week may be given. The result is not as good as when the patient is at rest. The possible explanation may be based upon the theory of Ehrlich, that the spirochætæ are overwhelmed by the vigorous use of the drug, while a lesser quantity may immunize the parasite to the remedy.

The experience of the author would seem to emphasize the need of absolute rest for the patient while under the injection treatment. He asserts he is unable to state just how much the rest treatment may do for this class of people without the mercury because he has made no control clinical experiments.

It is his opinion that the iodides have but little value in a typical locomotor ataxia. It is possible that the use of the iodides begun ten to fourteen days after the last injection may activate the mercury within the body and make it more efficacious. A moderate dose, therefore, of 10 to 20 grains three times a day may be used for two or three weeks of each month, beginning ten days to two weeks after the last injection. It is best to repeat the series of mercurial injections after three or four months, and this may be necessary for the three, four, or more series of injections. The iodides may, of course, be given after each series of mercurial injections. Surgical cleanliness must be observed in giving injections. The patient should use an appropriate antiseptic mouth-wash and keep the teeth clean. Tobacco and alcohol should be prohibited. The patient may have massage or light exercise in his room once a day during the confinement to bed. All ataxia patients should have Frenkel's reëducation movements applied. These movements are not difficult for the patient to learn and follow himself. Frenkel's book with its illustrations will enable him to rationally carry out

his own reëducation. The Wassermann test should be made in all patients at the beginning and end of each series of mercurial injections.

While we do not know fully about the Wassermann test and its relation to syphilis, it has been accepted by those interested in syphilis and the diseases attributed to it. Long experience will enable us finally to know its relation to syphilis and other conditions. When the test is properly controlled by known positive and negative tests, it may be more fully relied upon.

Twenty of the patients under the author's care have been very much improved. Five have had a return of the knee-jerk under reënforcement, and in three a sluggish light pupilary reflex has returned. The lightning pains have been very much improved in all. Fatigue, exposure to cold, etc., cause a return of the pains, but as a rule they are not as severe as formerly. Gastric crisis has disappeared in five of the seven who were treated. Two of the patients died of paresis, and this occurred while they were under energetic mercurial treatment. Three have progressed to a much worse condition in spite of the treatment. The four patients who were treated by intramuscular injections by their physicians are reported to be improved. Three patients who had vigorous treatment by mouth and by inunctions have been very much improved. One of these is notable, inasmuch as his condition is practically normal. Fourteen years ago his knee-jerks were entirely absent. He had the Argyll-Robertson pupil, a considerable incontinence and irritation of bladder, and severe lightning pains. His pupils are now sluggish to light, his knee-jerks are present with reënforcement, his bladder is normal, and the lightning pains are practically gone.

The author thinks he is not overoptimistic concerning the result of specific treatment in tabes. Like other chronic infectious processes, the conditions may be so virulent that no form of treatment will stop its progress. It is impossible to relieve the patient of morbid anatomical changes which are present. On the other hand, it will be possible, the author believes, with a more careful investigation and recognition of the disease in its incipiency, with vigorous specific treatment, to afford results which will make the prognosis more favorable than is generally admitted by the profession as a whole.

THE TREATMENT OF AN ACUTE COLD.

WHITE in the *Journal of the Michigan State Medical Society* of February 11, 1911, says that, briefly stated, such treatment should be along the following lines: The chilly feeling and aching is best controlled by a capsule containing pulv. Doveri grs. 1, quinine sulph. grs. 2, and pulv. capsicum gr. ½, or phenacetine grs. 2, given every three hours during the first twelve hours. That night on retiring one dose of pulv. Doveri grs. 10, quinine sulph. grs. 5, is given. This is followed by a hot drink, and an hour later by calomel grs. 4 and sodii bicarb. grs. 20. The hot drink and Dover's powder will encourage free perspiration. The following morning before breakfast a Seidlitz powder, Rochelle salt, or some other alkaline cathartic is administered. The patient may attend to his business, providing his temperature does not exceed 99½° or 100° F. The turgescence of the nasal mucous membranes can always be controlled by the application of a one-per-cent solution of cocaine. This is a good preliminary to nasal douching, now to be given twice daily, and will contract the tissues sufficiently to allow the douche to remove all thickened secretions. It will also afford comfort to the patient without interfering with the normal mucous secretions which we expect to encourage.

After the first twenty-four hours have expired and the patient is left with only a slight increase in the temperature, not to exceed 100° F., with the aching and chilliness diminished, the writer believes it would not be detrimental for him to attend to his business. Allowing him to do this, he would prescribe a mixture of potassium iodide grs. 2, ammonium chloride grs. 5, every four hours in camphor water, besides a capsule containing quinine sulphate grs.

2, salol grs. 2, and phenacetine grs. 2, to be taken every four hours. The former will encourage free secretion from the mucous membranes, and the latter will control what little temperature and aching remain. In the author's opinion the free use of quinine has the most beneficial effect of any remedy in establishing a defense against pneumonia. From experience he has found that by dissolving the quinine in dilute hydrochloric acid its action will be more accentuated and pronounced; it will not lie unabsorbed in the intestines and pass as such from the bowels.

Should any fever remain at the end of the forty-eight hours, he would continue the quinine, etc., at the same time advising another cathartic consisting of pulv. glycyrrhizæ co. However, in the absence of fever he would discontinue the quinine, etc., as well as the potassium iodide and ammonium chloride mixture, and substitute ammonium carbonate for a few days.

The nasal mucous membrane is very sensitive and subject to many changes following "catching cold." Consequently it should be given due consideration. The uncomfortable sensation of sneezing, and the familiar symptoms of pain and fulness about the nose and forehead, with flushed face and eyes suffused, all of which contribute to this uncomfortable feeling, can largely be controlled by a cream containing 1 to 20,000 parts of adrenalin chloride and 10 per cent para-amido-ethyl-benzoate, commonly called anesthone, in a bland oleaginous base. This has a more lasting anesthetic and astringent effect than cocaine; besides, it is less toxic.

It has always been difficult to prevent excoriations of nasal mucous membranes and of the lips resulting from the constant irritating discharges that flow from these sufferers, but by limiting this discharge after the fever has subsided, great comfort can be had by a snuff composed of menthol, grs. j; sodium bicarbonatis, grs. ij; magnesium carbonatis (levis), grs. iij; cocaine hydrochloratis, grs. iij; saccharum lactis, ℥iss.

Most marked relief follows the use of this powder. Its effects are immediate, highly agreeable to the patient, and continue for a number of hours. The above can be continued until the discharge lessens and the mucous membranes again become normal.

Should the patient interpose any objection regarding the use of the snuff, a good substitute is menthol grs. 6, chloroform gtt. 5, camphor grs. 5, liquid alboline or benzoinol ozs. 2. Use in an oil atomizer every two hours.

The acute stage having passed away, we should not at once dismiss the case, but make another effort to ascertain whether any abnormality exists. Particular attention should be given the middle turbinated body. We should see whether or not it occupies the whole space, thus preventing the flow of normal secretions. Obstructions from this cause favor the development of pathogenic microörganisms, which in turn are very apt to set up sinus disease or other chronic inflammation. Enlargements of the inferior turbinates are not so frequently detrimental, but even they should receive proper consideration.

THE GALACTAGOGUE ACTION OF THE THYMUS, CORPUS LUTEUM, AND THE PINEAL BODY.

Ott and Scott in the *Monthly Cyclopedia and Medical Bulletin* for February, 1911, make a report on this topic. In experiments upon the goat with the glands containing internal secretions, they have found that the thymus and corpus luteum increase the quantity of milk fourfold in five minutes. The ovary minus corpus luteum has no effect. Infundibulin is still the most powerful galactagogue, increasing the secretion of milk one-hundredfold. The amount of butter-fat is about the same in the augmented secretion by thymus, corpus luteum, and infundibulin, though occasionally it is increased.

The authors have found that intravenous injections of the pineal body increase the secretion of milk eightfold.

They used the goat in their experiments. The pineal gland, as in their previous ex-

periments, was rubbed up with distilled water and filtered. Normal saline, according to Biedl, has been shown to increase the secretion of milk.

THE CHOICE OF A DIURETIC.

Writing on this topic in the *British Medical Journal* of February 11, 1911, EUSTACE SMITH says that in our choice of a diuretic in a case of cardiac dropsy we must bear in mind that the cause of the edema lies primarily in the chest, and not in the abdomen, and that remedies which act only upon the kidneys are of little or no value unless combined with others which strengthen the action of the heart. We must remember, too, that when blood-pressure is low drugs which tend to lower arterial tension still further are not only useless, but become an actual source of danger. We turn, then, to the list of cardiac tonics—of remedies which increase the vigor of the heart's movements, and moderate undue rapidity of action. Under their influence the heart contracts with greater energy; the diastolic pause is lengthened so as to allow of more complete unloading of the large venous trunks, and more blood is forced through the kidneys. Digitalis, strophanthus, convallaria, squill, and some other drugs act in this way, but digitalis, as a rule, is the most highly prized. In two or three days after beginning its use the blood-pressure rises, the pulse becomes fuller and more regular, and there is copious diuresis. This improvement is especially noticeable in cases in which there is dilatation of the left side of the heart with mitral insufficiency, a feeble, irregular pulse, and, as a consequence of low arterial pressure, a scanty secretion of urine. Unless mitral regurgitation be present the influence of the remedy in promoting an increased flow of urine is but small; and if the heart is already acting strongly and the pulse is full, regular, and equal, without signs of mitral leakage, digitalis is not required, and if given may probably prove hurtful. Under such conditions the urinary secretion is normally free; and as a rule we may take the amount of urine passed as a fair guide to the probable usefulness of the remedy. Therefore, if secretion be already of normal amount, and the pulse be regular and full, digitalis should not be included in the prescription. Instead we should give diuretin combined with an infusion of broom-tops.

It may be remarked that a feeble, irregular pulse is not in itself a sufficient sign that digitalis is required. The effect of the drug, if given too continuously or in too large a dose, is to make the pulse very rapid and very weak, and to lessen the renal secretion. In all cases, therefore, when these symptoms are observed it is well to inquire as to what treatment, if any, has been adopted before we venture upon the use of this remedy. It may well be that digitalis has already been given in excess and ought at once to be replaced by strychnine and stimulants. So, also, if there be great dilatation of the right side of the heart with tricuspid regurgitation, digitalis should be given with caution, for by heightening the vigor of contraction of the right ventricle we run the risk of increasing dangerously the leakage backward into the overcharged systemic veins. Again, in cases of early aortic regurgitation digitalis is a dangerous drug to employ, but at a later stage when mitral incompetence has become established its use is followed by very satisfactory results.

There is one other point which may be noted: digitalis acts not only upon the heart but also upon the coats of the peripheral vessels of the general system, causing them to contract. They therefore offer increased resistance to the driving force of the heart. If the heart be gravely degenerated, as in the fatty heart, which is common in elderly persons, or in the acute degeneration of the heart which is often seen in cases of chronic heart disease at all ages, this resistance may be so great that the cardiac contractions are unequal to the effort of driving the blood through the narrowed peripheral vessels, and the heart stops beating. A sudden cardiac failure from this cause, then, may be directly pro-

moted by the very means which we adopt in the hope of preventing it.

If we desire to obtain the tonic influence of digitalis upon the heart walls without a corresponding contraction of the peripheral vessels, we can neutralize its effect upon the latter by combining each dose of the remedy with a proportion (20, 30, or more drops) of the spirits of nitrous ether, which has the property of causing dilatation of the small vessels both of the kidney and the general system. Or we may make use of another cardiac tonic—the tincture of strophanthus. This drug, although it acts upon the heart like digitalis, has much less power of causing contraction of the peripheral vessels.

Although as a cardiac tonic digitalis is the remedy we value most, its efficacy as a diuretic may be further enhanced by giving it in combination with other drugs which promote diuresis by different means. A conjunction with drugs which have a special action upon the renal epithelial cells is usually attended with the best results, for in cardiac dropsy the cells are healthy, and capable therefore of responding to stimulation. The citrate of caffeine is perhaps the most useful of these drugs in ordinary cases. This remedy, like digitalis itself, has the power of compensating for valvular insufficiency and improving the rhythm of the heart, and it has also its own special endowment of stimulating the kidney cells of the tubules. The combination is further strengthened by the addition of sweet spirits of nitre, as dilator of the afferent vessels of the kidney, in doses of 30 to 60 drops. In giving this combination it is best to prescribe the digitalis alone or in conjunction with the nitrous ether for two or three days before adding the caffeine, as digitalis requires to be taken several days before its effects become noticeable. The dose of caffeine should be moderate (2 to 3 grains two or three times a day), as stimulation of the epithelial cells of the kidney should always be looked upon as a temporary measure which is not to be abused, and may do harm if carried to excess.

The infusion of broom-tops is another safe remedy which may be usefully combined with digitalis. It contains sparteine, an alkaloid which has an action upon the heart similar to that of caffeine, and also contracts the efferent vessels of the kidneys. An ounce of the infusion given in conjunction with a drachm of infusion of digitalis, 30 to 60 drops of spirits of nitrous ether and 60 to 90 drops of the acetate of ammonia solution, is a diuretic of great value both in cardiac dropsy and in that which results from renal disease after the acute stage is at an end. Nitrous ether is one of our most valuable diuretics and can be included in most combinations; but it is incompatible with diuretin and the salicylates, and also with antipyrin and any drug containing tannin. Its good effects are perhaps most noticeable when given in combination with acetate of potash, digitalis, and squill. Diuretin, again, is a remedy which we could ill spare. It is most useful in cases in which digitalis has failed to bring relief or could not be taken without unpleasant effects. The drug has little or no action upon the cardiac muscle and appears to exert its influence as a diuretic quite apart from any increase of the blood-pressure. It may therefore be given without misgivings when blood-pressure is high and when, as a consequence, digitalis and other cardiac tonics are not desirable remedies. Diuretin has been found of especial value in cases of acute cardiac dropsy where the symptoms appear very suddenly. It may be usefully combined with infusion of broom-tops and small doses of tincture of strophanthus.

Some cases of cardiac dropsy resist treatment with extreme obstinacy. Although the diet may be arranged carefully both as to quantity and quality and the bowels kept regular and free, the patient seems to be unable to respond satisfactorily to any treatment, and meets every fresh combination of diuretic remedies with the same disappointing insensibility. When progress seems thus at a standstill, there are two drugs, either of which will often bring about a welcome change in the situation. One of these is tincture of canthar-

ides. The author looks upon this remedy as one of our most useful means of promoting diuresis in cardiac dropsy. Its action is upon the secreting cells of the tubules, and the effects manifest themselves very quickly. He states he has often observed a formidable quantity of fluid disappear in the course of a few days under the influence of this remedy, although all previous treatment had failed to make any impression upon the complaint. The dose may be 2 or 3 to 10 minims, according to the age, given several times a day. The tincture can be used in combination with any other remedy, and may be usefully added to a mixture containing caffeine, tincture of strophanthus, and spirits of nitre.

The other remedy which in obstinate cases can often be given with conspicuous success is mercury. Either calomel or blue pill may be employed, but the author prefers the latter. This remedy is well known as a useful addition to digitalis and squill when these drugs are prescribed for their diuretic action, but it is when given alone that the effects of blue pill are most strikingly manifested. The cases which are best fitted for this treatment must be chosen with care. The drug seems to have an action complementary to that of digitalis, and to prove most efficient in cases in which the latter has failed to increase materially the urinary secretion. It may therefore be regarded as belonging to the same group as diuretin and caffeine. Mercury is to be avoided if renal disease be present, and when given should not be pressed if diuresis does not result in the course of three or at the most four days, for it is in such cases that the system may possibly be unfavorably affected by the treatment. The author has given blue pill in doses of .3 grains three times a day in many cases, both to young people of ten or twelve years of age and also to the adult, and has found it to be very well borne and to produce free secretion; but when diuresis has been fully established he has made it a rule to discontinue the mercury and replace it with a mixture of caffeine and spirits of nitre with infusion of broom-tops. If the mercurial be continued too long we run the risk of setting up stomatitis; and in any case it is wise while the remedy is being taken to wash out the mouth several times a day with a suitable antiseptic solution. The drug is supposed to act by increasing the formation of urea, which is well known to have a powerful diuretic action, or possibly it may directly stimulate the renal cells. The mercurial treatment should be reserved for cases which have proved obdurate to other methods, and it is fortunately in just such patients that the most successful results have been observed.

THE SALICYLATES.

In the *Practitioner* for March, 1911, DIXON writes as follows on this topic: Apart from its well-known use in rheumatic fever, sodium salicylate is a powerful antipyretic. While supposing few modern physicians exhibit a drug solely to reduce pyrexia, there are some feverish conditions in which the salt appears to exert a specific effect. The first is nasal catarrh. The treatment of the "common cold" is still an opprobrium to medicine, but the best prescription for it is, in the opinion of the writer, the following:

> Sodii salicylat., gr. x;
> Sp. ammon. arom., f℥ss;
> Tr. belladon., mins. v;
> Aq. chloroformi, q. s. ad f℥j.
>
> Every four hours.

In the most common type of influenza, with a very sudden onset, severe headache, acute pain in the limbs, and a furred tongue, sodium salicylate is the best drug to use. The author affirms, from frequent and severe personal experience of the disease, that to give quinine to a patient who presents the above clinical picture is to add to his discomfort. After a mercurial purge, administration of the following cuts short the disease in two days:

> Sodii salicylat., gr. x;
> Potass. bicarb., gr. x;
> Tr. nucis vom., mins. x;
> Aq. choloformi, q. s. ad f℥j.
>
> Every two or four hours.

It must be a common experience of many practitioners to meet with cases, especially in children, in which the only symptom is a sudden high temperature. Careful examination reveals nothing abnormal, and past and future history shows no cause for the pyrexia. Some of these cases are possibly rheumatic, but the author believes that a considerable number are due to the absorption of some pyrexia-producing body from the intestinal contents. At all events, the exhibition of a few grains of sodium salicylate quickly restores the patient to the normal state.

Sir William Gowers has recently recorded a unique case of orbital cellulitis cured by salicylate of sodium. The only clue to the cause was a family history of rheumatism.

Salicylate of sodium has been strongly recommended by several authorities in the treatment of fever after childbed. The author has used it in six cases of comparatively mild forms of puerperal fever with most successful results. It should be combined with strychnine to avoid the depressing action on the circulation.

For the diarrhea and sickness of young children salicylate of sodium is almost a specific. Two grains may be given, in water, to a child of nine months, and repeated every two or four hours according to the severity of the disease. The drug may be made palatable by the addition of a little saccharin and chloroform water. Vomiting in most cases ceases after the first two doses, and the stools rapidly become less offensive and abundant. There is no after-constipation, as is so often the case when astringents are used, and the characters of the motions are not masked, as they are by the use of bismuth salts.

Sodium salicylate is probably the most powerful of all the hepatic stimulants, forcing the liver to secrete more bile, rendering this more fluid, and assisting its absorption. These actions may explain its great value in relieving so-called "bilious headache." The following, taken at the onset of the headache, generally gives rapid relief:

Sodii salicylat., gr. x;
Potass. bromidi, gr. xx;
Aq. chloroformi, q. s. ad f℥j.
Every four hours.

The cholagogue action of the drug probably explains its utility in relieving the constipation of gout, for once the bowels have been cleared by a mercurial purge, after-constipation can usually be effectually checked by the occasional use of salicylate of sodium. In this connection should be mentioned the value of the drug as an eliminant of uric acid. Haig has shown that its administration quickly reduces the amount of uric acid in the blood and relieves the symptoms due to uric acid poisoning. At the same time the blood-pressure is markedly lowered by the action of the sodium salicylate, and this probably accounts for the speedy relief of headache depending on high blood-pressure.

The relief of the pains of rheumatic fever by salicylate of sodium is a commonplace, but the drug is most valuable as an analgesic in many other conditions. Thus the acute pains of the many forms of fibrositis are quickly relieved by the drug in combination with antipyrin:

Phenazoni, gr. x;
Sodii salicylat., gr. x;
Tr. nucis vom., mins. x;
Aq. chloroformi, q. s. ad f℥j.
Every four hours.

The same prescription with the addition of 20 grains of bromide of potassium is usually effective in the headache of migraine, but, as with any remedy for that distressing disorder, it must be given at the very onset of the attack.

It is usually taught that the salicylate of sodium is especially irritant to the kidneys and that its use is to be carefully avoided where nephritis is suspected. When it is remembered in what huge doses, and for how long, the drug is given in rheumatic fever, and how rare it is to meet with nephritis in that disease, it is difficult to believe that there is any clinical evidence that the salt is obnoxious to the kidneys. On the contrary, its use has even been advocated in acute nephritis.

As to its value in inflammations of the lower urinary tract there can be no doubt. In the early stages of gonorrhea and in cystitis it is one of the most efficient drugs in the Pharmacopœia. In gonorrhea it should be combined with potassium bicarbonate.

Probably no drug has any specific influence on mumps, but in cases attended by rise of temperature and severe pain, sodium salicylate is the most effective remedy. The author has used it freely in two epidemics of mumps and has found it most valuable. Its excretion in the saliva, with its antiseptic action on the unknown bacteria of the disease, probably accounts for its action. It should be combined with an alkali, as in:

Sodii salicylat., gr. v;
Sodii bicarb., gr. v;
Saccharin, q. s.;
Aquæ, q. s. ad f℥ss.
Every two or four hours.

Such is an imperfect account of some uses of salicylate of sodium apart from its employment in rheumatic fever. There is a growing testimony to its value in some unmentioned disorders. Thus it has been used with good results in urticaria, and several cases of Graves's disease have been much improved by it.

TOLERANCE FOR ALKALIES IN ASIATIC CHOLERA.

SELLARDS writing in the *Philippine Journal of Science* for October, 1910, reaches the following conclusions concerning treatment:

1. The choice of alkali for treatment may vary somewhat in the different stages of cholera. The chief advantage of the normal carbonate would depend upon its ability to absorb carbon dioxide, but apparently few deaths occur primarily from failure of the internal respiration.

2. Sodium acetate may have some advantages, especially for the stage of collapse. As much as 80 grammes within twenty-four hours have been injected, but perhaps this amount is slightly excessive in certain cases.

3. As a general routine, sodium bicarbonate has been the most effective of the three salts. Its administration in collapse has several advantages, and, in selected cases, concentrations of 1 or 1.5 per cent may be used. A weaker solution could probably be chosen which would be suitable for routine use in all cases of collapse. Early in the stage of reaction, at least as much as 60 grammes may be readily given within twenty-four hours. The most important indication for discontinuing its administration is the development of muscular cramps or twitchings. These symptoms may appear, although the urine remains acid, and may be considered as a reaction to the alkali. Several cases in which excessive amounts of alkali were tolerated without the appearance of this symptom terminated unfavorably. There was a wide variation in the amount of alkali which resulted in the production of muscular contractions. The quantity apparently varied in direct proportion to the severity of the disease, although Loeb has shown that the precipitation of the calcium salts by carbonates gives rise to muscular contractions. If administration of alkalies is delayed until uremic symptoms develop, secretion of urine follows promptly after injection of sodium bicarbonate, but the final termination is usually unaltered.

4. In no case was the urine kept constantly alkaline. Indeed, in the majority of cases an alkaline reaction was never obtained, and it is difficult to conjecture what the effect might be of maintaining a constantly alkaline urine throughout the course of the disease.

5. The most important single factor in determining the amount and frequency with which alkali should be injected is the quantity of urine excreted. Sodium bicarbonate in 1.5-per-cent solution in 2-liter quantities has been injected as soon as patients come out of collapse, and repeated at twelve- to twenty-four-hour intervals until a free secretion of urine follows. Aside from mild convulsions, the only other untoward symptom following the injection of alkali was a temporary hematuria. This

occurred in three of the fifty-five cases. It was slight in amount and persisted for from two to four days.

6. In comparing the two groups of cases, namely, those treated with chloride and those with alkali, the most important difference is the absence of uremia in the bicarbonate series. As a rule, morphine failed to quiet patients when the stage of uremia had developed. However, after the injection of alkali the respiration improved and the restlessness of the patients disappeared. Observation of the individual cases sometimes showed a sudden improvement following the injection of alkali. The value of the injection of alkalies is seen most clearly in that class of cases which have only mild symptoms of cholera, but which nevertheless develop fatal uremia.

7. In the specific treatment of cholera, there are several distinct pathologic conditions which are commonly present, and, consequently, no one treatment can meet them all. The treatment of the toxemia, which is the most important factor, is not under satisfactory control. The effect of fluid on the relief of mechanical conditions in the stage of collapse is well established. Symptoms of acid intoxication and the development of uremia during the stage of reaction did not occur (except in one instance) in a group of fifty-five cases treated with acetate or bicarbonate of sodium.

The author adduces the following general summary:

1. Examination of the urine in cholera showed an almost constant increase in the excretion of ammonia.

2. Cholera patients showed a definite tolerance to alkalies, a considerable excess of sodium bicarbonate being required to render the urine alkaline as compared with normal individuals. Within certain limits, the administration of alkalies not only failed to render the urine alkaline, but its acidity was even increased, as measured by titration. Following the injection of alkalies, there was sometimes a sudden and marked increase in the excretion of urea.

3. The early administration of alkalies practically eliminated death from uremia.

The most important findings are the tolerance for alkalies and the change in the course of the disease. This tolerance may be dependent either upon the cholera infection or upon the accompanying nephritis; apparently it is related more closely to the uremia than to the enteritis. The condition will be of more general interest if it proves to be present in uremia from other causes than if it is specific for cholera.

TREATMENT OF FISTULA WITH BECK'S BISMUTH PASTE.

BRANDES (*Deutsche Zeitschift für Chirurgie*, Bd. 108, Heften 3-4) reports from Anschütz's clinic upon the use of bismuth paste as first employed by Beck of Chicago. The author has used a paste made up of 30 parts bismuth subnitrate and 60 parts white vaselin, omitting from the formula the wax and paraffin as advised by Beck for treatment. Cure did not as a rule result from one or a few injections, but only after frequent injections, during the course of which the secretion gradually changed from a purulent to a serous or bloody character. While Beck filled the fistula by injecting the paste from its mouth by means of a glass syringe the author makes his injection from the source of the fistula toward its mouth. In this way the driving of the exudate in the fistula into the surrounding tissues is avoided. In order to accomplish this a catheter or rubber tube is passed into the fistula to its bottom and the paste injected through it. As the tube is slowly withdrawn the injection is continued, and in this way all branches of the fistula are filled. By this method when subsequent injections are made the old paste is brought out of the fistula and its place taken by fresh paste. Frequently only the bottom of the fistula has been filled in order to avoid such intoxication as has been reported to result from bismuth injections. This is especially to be advised in children or in weakly, anemic adults. An important precaution is to make sure before the injection that the fistula is as free as possible from secretion; the removal of the

secretion is best accomplished by Klapp suction glasses. It is inadvisable to irrigate the fistula prior to injection, for it is essential to good results that its walls be dry in order to properly receive the injection. If hemorrhage is excited by introduction of the tube injection should be delayed and the tube left in position until bleeding stops and the surface becomes dry.

The fistulas which offer the best results from this treatment are those following operations, such as empyema operation, resection, extirpation of bursæ, kidney extirpation, sequestrotomy. It is difficult to decide when to institute this treatment in fistulas resulting from tuberculosis of the joints or spine. If an attempt is made to close these too early retention abscess is apt to result. It is well in such cases first to endeavor to improve the general condition of the patient, and in this way to combat the cause of the fistula formation and thus to lessen the secretion.

In four cases of thoracic fistula cure was prompt in three cases; the fourth was a bronchial fistula. In seven fistulas of various kinds involving bones and joints healing was prompt. In another series of eighteen fistulas of bones and joints, all but three of which were tubercular, twelve resulted successfully, one remained doubtful, and five did not yield.

When the general condition is poor, the secretion abundant, or the primary disease progressive, the outlook for cure is unfavorable. Advanced bone and joint tuberculosis yields poor results. The danger of poisoning is much reduced but not altogether averted by substituting the subcarbonate for the subnitrate of bismuth, and by reducing the amount injected.

TREATMENT OF WOUNDS OF THE LUNG.

Bomhard (*Beiträge zur klinischen Chirurgie*, Bd. 70, Heft 1) says that operative treatment of wounds of the lung is carried out more frequently now than formerly, a fact due not only to improved technique but also to the introduction of apparatus for differential air pressure. The statistics of Garré show that in 700 cases the mortality resulting from conservative treatment was 40 per cent. Statistics also show that 5 to 6 per cent of cases come under the care of the surgeon in an operable condition. These cases die either from bleeding or from pneumothorax. In such cases operation is not only justifiable but is the duty of the surgeon.

In von Angerer's clinic during the years 1900 to 1910 there were observed 86 cases of lung wound; of these 42 were gunshot wounds, 35 stab wounds, and 9 rupture of the lung. Symptoms of wound of the lung are increasing effusion into the pleural cavity, pneumothorax, weakening and suppression of the respiratory murmur, bloody expectoration, rapid and shallow breathing, general signs of acute anemia, marked paleness of the skin and mucous membranes, small, scarcely perceptible pulse, and cold extremities.

The conservative treatment consists in absolute rest; if there are signs of severe hemorrhage, the patient is not permitted to sit up and the examination must be made with the patient lying down. Morphine should be given subcutaneously and an ice-bag put upon the region of the thoracic wound. Punctured and incised wounds should be carefully disinfected and partly closed by sutures. Gunshot wounds should be covered with an aseptic dressing.

Frequently the organs are injured, so that on this ground alone immediate operation is demanded. Of this class are such conditions as bleeding from the vessels, as the external or internal mammary or the intercostals; wounds of the pericardium or the heart; wounds of the abdominal organs.

Of 31 cases of punctured wound of the lung, 29 were treated conservatively and two by operation. Of the former five died, three of hemorrhage and two of secondary infection. The two operative cases recovered. In three cases in which resorption of the bloody exudate did not occur puncture was done in ten to twelve days. In one case there was a prolonged empyema with septic symptoms, but cure resulted.

Of 42 cases of gunshot wound of the lung treated, eight died, one of sepsis and seven of hemorrhage; nearly all of the fatal cases had serious complicating wounds. One case treated by operation died, two died soon after injury, and 39 were treated conservatively. Of nine cases of rupture of the lung, four died.

The question of the indications for operation is one which is difficult of solution. There is no one definite indication. The author believes that operation is demanded where there is severe primary hemorrhage if there are signs of marked anemia; also when there are repeated hemorrhages in which puncture of the thorax fails to bring relief, and where there is serious pressure upon the heart.

INDICATIONS FOR OPERATION IN PYLORIC STENOSIS IN INFANCY.

MONSARRAT (*British Journal of Children's Diseases,* February, 1911) observes that no explanation possessing a satisfactory basis other than that of muscular hypertrophy consequent upon spasm has yet been offered for this important lesion. The circular fibers of the pylorus show hyperplasia. They are increased in number and are also stouter than normal. This change is often so marked that it presents as a tumor when the abdomen is examined by hand. As a result the pyloric orifice is narrowed to minute dimensions, and apart altogether from any condition of spasm of the hypertrophied muscle, we have a mechanical obstruction to the onward passage of the stomach contents. A large proportion of the children suffering from pyloric spasm respond to medical measures to such an extent that it is found possible to feed them sufficiently.

Monsarrat holds that a period of seven to ten days is sufficient to show definitely whether medical measures are going to achieve their purpose. The vomiting and fluctuations in weight are phenomena of which an accurate record can be kept, and which are indicative. The operation of choice is posterior gastroenterostomy.

THE TREATMENT OF GASTRIC AND DUODENAL ULCERS.

HORT (*British Medical Journal,* Dec. 17, 1910) observes that many fallacies are accepted as truths, when considering the question of gastric and duodenal ulcers, and that the first is concerned with the question of rest. It is generally believed and taught that complete rest in bed, when coupled with deprivation of food by the mouth, necessarily involves complete rest of the stomach and duodenum, expressed in absence of visceral movement and secretion. This belief has little solid foundation of fact. The injection of food into the bowel is always apt to start gastric movement and gastric secretion, as has been amply proved. So also will the sight or even the thought of food. Not only so, but it appears from recent experiments by Dr. P. O. Shirokieh that the stomach is never motionless for long, even when completely empty. There is again some evidence to show that secretion of the digestive juices is not necessarily restricted to the times of intake of food even in absence of psychic stimulus. If this be true, it is clearly impossible to secure absolute visceral rest, though restriction of general movement and food supply must certainly assist. Passing of hyperacid secretion over the pylorus is also, as we know, productive of contraction of the gastric wall. It is, of course, not suggested that some beneficial restriction of movement and secretion cannot be induced by appropriate means. But it has become the custom for many writers to assert that they are able by rest in bed and deprivation of food to immobilize the stomach as one would speak of immobilizing a limb. It is therefore necessary to call attention to the fact that such immobility is largely imaginary.

The second fallacy is concerned with the administration of liquid food. It is believed that if food is to be given by the mouth in these cases of ulcer it should be given in liquid or in semiliquid form. This is not good practice, partly because an ulcer that will not heal, such as the chronic form of lesion, will not the more readily do so if its floor and edges are constantly being

soaked and steeped by an infected decomposing medium charged with fatty organic acids and the products of fermentation. That such is a common state of the gastric contents in cases of chronic ulcer numberless analyses show. One of the reasons for infection and decomposition is the gastric stasis that is almost the rule in long-standing cases of ulcer, and very frequently in cases with a shorter history. The gastrostasis is the result of gastrectasis, itself the expression either of stenosis or, more generally, of toxemic atony. To add meals in a fluid or semifluid state to a stomach already heavily laden, as is often the case, with many ounces, or even pints, of unescaped relics of previous meals, is the best possible method of retarding healing. For not only is the ulcer itself liable to infection, and the formation of healthy granulations to serious inhibition, but from the constant hyperevolution of gas incessant movement of gastric and duodenal walls is excited and repair made doubly difficult. Add to this the profound interference with general nutrition by the contamination of each succeeding meal by the undischarged remains of many past meals, and we are led to wonder how, under these conditions, healing can ever take place. For if general nutrition be impaired the power of local healing must be seriously hampered, quite apart from the obstruction to healing due to the rigid barrier that so frequently exists between the floor and sides of a long-standing lesion and the vivifying influence of a well-fed lymph stream.

The third fallacy is one that seriously affects the position of both physicians and surgeons alike so long as they regard treatment of the ulcer equivalent to treatment of the cause of ulcer. The whole question, indeed, of the permanent value of any method of treatment of gastric and duodenal ulcer turns on this: Is the ulcer that you wish to cure a disease in itself, or is it merely the local sign of a general dyscrasia whose very existence you have never suspected? If "simple" ulcer, with its attendant miseries of pain and hemorrhage, be a disease *sui generis*, as has been taught for so long, we can never attain to unanimity of opinion as to what, taking the cases as a class, is the ideal method of treatment to adopt, and the present state of chaos and uncertainty must always continue. For, so far, whatever be the method followed, even in the early stages, success is only spasmodic, and relapses and failures form a high percentage, which is daily being added to even from the clinics of the most successful exponents of modern surgery. If, on the other hand, gastric and duodenal ulcer, with attendant pain and hemorrhage, are merely local symptoms of a general dyscrasia characterized by the recurrent appearance in the blood of toxins with a specific cytolytic affinity for gastric and duodenal tissues, how different the problem of treatment becomes!

Hort deals with the treatment of ulcers under four headings. He is accustomed to postpone all treatment until the mouth has been passed as free from any focus of infection by a reliable dentist, and expresses himself as amazed to find that in the large percentage of cases in which gastric pain and hemorrhage occur marked pyorrhea or dental caries exists. In most cases a purgative pill is administered nightly for at least a fortnight. Tea, coffee, spirits, soups, broths, and in most cases milk are excluded. Absolute rest in bed for more than a few days is seldom necessary in cases unattended by hemorrhage. Dry meals are given mainly of meat, and the stomach is never allowed to go many hours without food. Beef, mutton, lamb, lightly cooked, fresh, tender, and served with fresh gravy, should constitute the meals, except for toast or one or two rusks, if preferred, with butter. For breakfast, toast, butter, and eggs may be given, and for tea the same, with a little hot water to drink. At 11 A.M., 3 ounces of raw beef juice freshly made, and again at 9 P.M. During the night, if disturbed by pain, small sandwiches made of stale bread containing freshly pounded chicken or game may be given.

The chief value of the oral administration of a normal serum, whether of man, horse, sheep, or ox, is, in these cases, a local one. Its action in enabling an ulcer to heal is

both direct and indirect. Indirectly it is of value on account of the power possessed by mammalian serums to disinfect an ulcer and to check its advance by virtue of the antiferment activities that all such serums possess.

Normal serum should never be given in cases of open ulcer to starving patients or on an empty stomach, as troublesome or even serious symptoms may ensue. In chronic cases of gastric or duodenal ulcer it is administered in doses of 10 Cc. three or four times a day, immediately after food, in half an ounce of cold water. Serum must be both toxic and sterile. It should be administered for at least a month in all ulcer cases, except the mildest, and then gradually discontinued.

In case of severe hemorrhage immediate and absolute rest is essential, together with the promotion of cerebral anemia by raising the head. The rapid and careful passage of a well-oiled tube just past the cardiac orifice with a funnel attached to the distal end, succeeded by the injection of a few ounces of iced water, is followed by gratifying results. In all cases showing great disquiet a preliminary hypodermic injection of morphine and atropine is useful. Ergot and calcium salts are perfectly futile. Ice-bags to the epigastrium give occupation to the patient's friends and do not help the patient, may even greatly increase the pain, and certainly aggravate stasis of the gastric contents. The injection, repeated if necessary two or three times at intervals of two or three hours into a vein, or under the skin of the flank or axilla, of normal horse serum, guaranteed as fit for injection, is of the utmost value. Sometimes it fails. Twenty-four hours after bleeding has ceased food may be begun by the mouth.

THE EXCISION OF THE CANCEROUS SEGMENT OF THE ESOPHAGUS.

LANE (*British Medical Journal*, Jan. 7, 1911) observes that cancer of the esophagus offers an ideal situation for the treatment by radium, particularly as it extends so slowly by means of glandular infection.

When the disease affects a portion of the esophagus in the neck he believes it is possible to remove the growth in its entirety and yet leave the patient in a condition of comparative comfort after the operation. Hence the operation he has practiced is to excise the portion of the esophagus affected by cancer together with any glands, keeping well away from the diseased area, and to replace the segment of esophagus removed by means of a strip of skin cut transversely from the neck and retaining an attachment and blood supply, the continuity of the esophagus being completely restored. After an interval of sufficient length for the firm union of the skin esophagus to the portion of the normal esophagus at the lines of section, the attachment of the flap of skin by its base to the skin of the neck is divided, and any lateral aperture in the skin esophagus which may remain is closed. Except when the growth involves the extreme upper limit of the esophagus or invades the upper aperture of the larynx it would probably be possible to avoid performing tracheotomy. Till the edges of the skin esophagus have united to those of the esophagus, a tube for feeding purposes should be retained in position.

Lane reports a case in point, the patient having carcinoma of the upper limit of the esophagus, which appeared to invade the back of the arytenoid muscles. A skin flap two inches deep and about five inches in length was cut from the front of the neck, extending horizontally from a vertical line from the left of the larynx over the anterior and right lateral aspect of the neck. The flap was reflected up to its base. The larynx was displaced forward and to the right, and the upper portion of the esophagus for three inches of its length was freely exposed. The growth, which was very dense, was found to involve the upper two inches of the esophagus. There were two small shot-like infected glands which were removed. The esophagus was divided transversely above and below the growth, which was dissected from the posterior surface of the larynx and from the arytenoid muscle, as the mucous membrane covering

this structure was swollen and edematous. The flap of skin was then folded in the form of a tube about the diameter of the esophagus. Its upper margin was sutured to the upper limit of the pharynx, while its lower margin was sewn to the divided edge of the esophagus. It was also attached to the larynx at the upper aperture. Owing to the fact that the patient was unable to swallow her saliva, it became necessary to perform tracheotomy a few hours after the operation. A tube was passed through the pharynx and the esophagus, and through this she was fed.

The tube was removed after some weeks, but the patient could not swallow fluids. She gradually learned to swallow her saliva, but remained permanently unable to obtain sufficient food by the usual passage. In spite of the use of radium and the *x*-rays an indurated mass appeared in the neck in the vicinity of the operation and discharged itself externally, leaving a sinus. Through this aperture, about the end of December, a sudden profuse hemorrhage took place, resulting in the death of the patient.

The area of esophagus made by skin did not differ in appearance from the adjacent portion of normal esophagus, with which it had become continuous.

TREATMENT OF RODENT ULCER.

LITTLE (*British Medical Journal*, Jan. 7, 1911) after having had an opportunity of testing carbon dioxide snow, and of ionization, in a series of cases of rodent ulcer, both in hospital and private practice, is much pleased with the results. The nicest, most economical and most satisfactory method of preparing the carbon dioxide snow is by means of the blotting-paper method introduced by Tousey. A rather thick blotting-paper or filter-paper about 6 inches square is taken, and rolled round a thick pencil or rod of the same caliber as the free end of the brass nozzle. One end of the roll of paper so formed is folded so as to produce complete obstruction, and the roll is then bandaged closely over, leaving two free ends of bandage, with which the roll is eventually attached to the neck of the cylinder. The bandaged roll is then slid on to the nozzle and tied tightly over it and round the cylinder; the stop-cock is slowly turned on until the nozzle is quite cold and covered with frost, when with a few more sharp turns the gas is released under greater pressure, and the roll can be felt to harden under the finger. The cylinder should always be supported with the neck lower than the base while the snow is being collected. When the desired quantity has been obtained the stop-cock is turned off, and the roll, filled with hard snow, is removed and the bandages and blotting-paper peeled off, exposing a stick about the size and thickness of the little finger. For many purposes this is sufficiently compressed, but for rodent ulcers, where much pressure should be exercised, it will require greater density. To effect this the stick is introduced bodily into a hardwood mold with a well-fitting wooden plunger. The stick is then broken up inside the mold by a series of sharp taps with the plunger, and then rammed down by striking the plunger with a wooden mallet. A stick about an inch long and hard enough to trim and cut to any desired smaller size or shape is thus usually obtained. In order to handle this without risk to the operator several folds of cotton-wood should intervene between the stick and the hand; the free end, uncovered by wool, is applied directly to the part to be treated.

The surface is prepared by having the patient wear over the part for three or four days prior to the freezing a 25-per-cent salicylic acid plaster. The average time of application is from twenty to twenty-five seconds, with pressure as firm as the patient can stand. Where the ulcer is situated directly over bone the pressure can be very firm and the time shortened. There is not much pain at the time of operation, and the subsequent pain is lessened by the use of warm compresses immediately after freezing. The patient should be warned of subsequent edema. One application of freezing for twenty seconds may be sufficient. Much more commonly two or three more will be

required. These are given at intervals of about two weeks. The indication for ceasing treatment is found on the disappearance of the hard cartilage-like tissue characteristic of rodent and the healing of the ulcer. The scar is suprisingly inconspicuous and like natural skin. Ionization produces less immediate disfigurement and is believed by the author to be equally satisfactory in its results.

A galvanic battery capable of producing 5 to 10 milliamperes of current in a circuit is employed. Electrodes of pure zinc graduated in size to the lesion to be treated are attached to the positive pole of the battery, and the metallic surface covered with four to six folds of gauze, saturated with a solution of zinc sulphate (2 per cent) in distilled water. The patient will hold the negative electrode, which is most conveniently cylindrical. This must also be coated with clean gauze soaked in warm saline solution. The current is turned on cell by cell. This gradual addition and removal of the current much lessens the amount of pain. There is an immediate whitening and depression of the part treated, which soon passes off. The treatment can be repeated in about seven days.

TINCTURE OF IODINE IN SURGERY.

RECLUS (*La Presse Médicale*, No. 13, 1911) writes on this subject as an enthusiastic convert to the routine use of the tincture of iodine in surgery. He quotes Lejars to the effect that when a workman receives a contused or lacerated wound of the hand the appropriate treatment consists in first scrubbing the wound and its environment with soap and hot water, using a coarse brush, and cleansing every depression of the skin; thereafter by washing with ether, then with benzine, then with gasoline, and then with alcohol. After these preliminaries, which will take at least half an hour, the wound should be cleaned by removing clots, foreign bodies, and dead fragments of tissue. It should be thoroughly bathed with peroxide of hydrogen and then dressed with compresses soaked in peroxide. Thereafter dry compresses should be applied of absorbent cotton secured in place by bandages.

Reclus compares this somewhat elaborate treatment with the iodine treatment. All the implements required are a bottle and some compresses of aseptic gauze. The compress is wet with tincture of iodine and the wound is thoroughly bathed, every portion of it being reached. The surrounding skin is brushed with the tincture of iodine. The whole operation is finished in a very few minutes. Subsequent dressings are equally simple. In twenty-four hours the wound is opened, is repainted with tincture of iodine and a fresh dressing applied. The dressing is repeated each day until free discharge ceases. Thereafter a dressing every third or fifth day is sufficient. If the wound should be covered with a retaining pseudomembrane or with crusts it is bathed with peroxide of hydrogen. Reclus regards the pain incident to this treatment as of but slight moment, since he has tried it upon himself and finds that the resultant burning quickly passes away.

As to the treatment of extensive burns he hesitates to employ iodine, though one of his colleagues has used it successfully even in most extensive lesions. Upon certain skins the drug exerts a vesicant effect. In his own experience, after having used it for a year in a very large hospital clientele, he has observed only three cases of vesication, which were fugacious and negligible. It should be reçognized that tincture of iodine is not a stable compound; it soon goes into decomposition, forming hydriodic acid. To this have been attributed the caustic properties of old preparations. Moreover, alcohol evaporates and the tincture becomes stronger in iodine content with age. Hence it is important to use a fresh tincture, or to add to the preparation, in case it is intended to be kept, thirty grammes of iodide of potassium to the liter. The U. S. Pharmacopœia incorporates 50 grammes. As to the efficacy of the tincture of iodine, he quotes a communication from a Dr. Paul Blondin, who writes enthusiastically concerning the splendid results obtained by the use of the tincture of

iodine in all forms of traumatism; wounds from bursting of a gun, and from the bite of a panther; and describes how in the midst of the wilds remote from all help, he was able to perform a disarticulation of the knee using as the sole antiseptic tincture of iodine. The healing was prompt, and the patient in gratitude for her recovery named her child "Doctor." Reclus suggests that a better name would have been "Tincture of Iodine." As to suppurating wounds the remedy is equally efficacious. The drug seems to have a singularly happy effect in preventing the development of a spreading cellulitis. The treatment is advocated for all crushes of the extremities. In those extensive lesions involving compound fracture Reclus has experienced no reverses. In case of acute spreading gangrene starting from a maladroit puncture of a hematocele, having invaded the belly walls, the thorax, and formed sonorous pockets in the armpits, Reclus opened the major focus of infection with a thermocautery, evacuating gas which burst into flame. Iodine was applied thoroughly to all the cavity and the patient recovered.

INTRAVENOUS ETHER ANESTHESIA.

SCHMITZ-PEIFFER (*Beiträge zur klinischen Chirurgie,* Bd. 96, H. 3) says that, although Burkhardt pronounced favorably upon intravenous ether anesthesia, Witzel and his pupils, after long-continued animal experiments, caution against its use except with the most extreme care on account of its harmful influence upon the kidneys, the blood, and the blood-vessel walls. Küttner, also, after using this method in 23 cases, advises against its employment, because in one of his cases there was serious lung embolism, and in another case a clot the size of a pea formed at the site of injection and interrupted the anesthesia. The author, having made use of the intravenous method in 40 cases, says that it is justified only in exceptional cases because its safety is not to be compared to that experienced in giving the ether by inhalation by means of the Roth-Dräger apparatus. The cases to which the intravenous method is best suited are those of operation upon the head and neck, in which the anesthetizer is in the way; also he has used it in severe cachexia from esophageal, gastric, or intestinal carcinoma.

The patients upon whom the intravenous method has been employed by the author varied in age from thirty-four to seventy-four years, with the exception of a girl of twenty-two with lupus of the nose and a man of twenty-four with sarcoma of the thigh. The remaining cases were those of stomach resection, gastroenterostomy, cancer of the uterus, malignant goitre, and tuberculosis of the knee-joint.

All patients under sixty years are given an hour before the operation ½ mgm. of scopolamine and ½ cgm. morphine. In this way excitation is avoided. After the patient is put upon the operation table the median cubital vein is laid bare under local anesthesia and the injection made with a special apparatus. Mostly in ten minutes, in fifteen at the latest, the patient is ready for operation. It requires 200 to 300 Cc. of a 5-per-cent mixture of ether and normal salt solution—that is, 10 to 15 Cc. of ether—to produce anesthesia when scopolamine-morphine has previously been given. In one case slight cyanosis and in another asphyxia was produced. The longest operation was two hours and twenty minutes and required 85 grammes of ether. So far as the patients were concerned the narcosis was agreeable. Neither headache, vomiting, nor other bad effects were observed. Other patients who observed the good results requested this method of anesthesia, while those who had experienced it once desired it a second time if operation became necessary. No change was observed in the urine except in one patient with pulmonary and laryngeal tuberculosis and amyloid degeneration of the kidney. In the last 10 cases immediately after operation blood was taken from the opposite arm and examined, but no change was found in it either microscopically or spectroscopically. In three cases complaint was made of pain in the arm, and some thickening of the vein could

be felt. Of the 40 cases 15 died in the course of their disease; autopsy was made on 11 of them. While there were no especial changes in the lungs, heart, or kidneys, there was found in every case a thrombus at the point of injection. The author believes intravenous ether narcosis to be fraught with danger, and in this respect agrees with Küttner, but believes that it is justified in selected cases.

JONESCU'S STOVAINE-STRYCHNINE SPINAL ANESTHESIA.

JUVARA (*Deutsche Zeitschrift für Chirurgie*, Bd. 107, Heft. 1-3) states that the two methods of anesthesia chiefly used by him are general anesthesia with chloroform and regional anesthesia with stovaine-strychnine. For minor operations, of course, local anesthesia is produced by means of stovaine applied to the nerve stem supplying the part.

Chloroform anesthesia is combined with the use of morphine, 1 to 2 centigrammes of which is given five minutes before the chloroform is started. With this method excellent results have been obtained throughout fifteen years' use. No bad results have been seen even when the anesthesia has been entrusted to those of but little experience.

The author has used spinal anesthesia for almost two years. It was not taken up because of any dissatisfaction with chloroform, but in order that operation might be done in an easier, simpler, and more exact manner. This method has been found so satisfactory that during the past four months almost all operations have been carried out under it and on all parts of the body. The usual dose of stovaine is 5 centigrammes, exceptionally 6 to 7 centigrammes; in order to avoid unpleasant by-effects 2 milligrammes of strychnine is added. Injection is made at five different places, viz., (*a*) the lower lumbar, between the third and fourth vertebræ, for all operations on the perineum and lower part of the pelvis; (*b*) the upper lumbar, between the first and second lumbar vertebræ, for operations upon the lower extremities and the gluteal region; (*c*) the lower dorsal, between the eleventh and twelfth thoracic vertebræ, for operations upon the belly wall and peritoneal cavity, the inguinal, the scrotal, and the crural regions; (*d*) the cervicodorsal, between the seventh cervical and the first thoracic vertebra, for operations upon the upper extremities, chest, neck, and head; (*e*) the median cervical, between the fourth and fifth cervical vertebræ, for operations upon the head with very much reduced dosage. The dosage is 2 to 4 cg. of stovaine for the perineum, 3 to 5 cg. for the lower extremities and the abdomen, 1 to 1.5 cg. for the chest, upper extremities, head, and neck, and 1 cg. for the median cervical puncture. The quantity of strychnine used is 1 mg. for 3 cg. of stovaine, increasing 0.3 mg. for each increase of 1 cg. of stovaine.

Puncture is generally easy; exceptionally it is difficult either because the needle is not properly directed or because the spine is curved, or because the interspinal ligament is more or less ossified, as is sometimes the case in old persons. After injection 0.5 grain of caffeine is given subcutaneously. Anesthesia occurs and operation may be started in two to three minutes, rarely as long as five minutes. An evidence of complete anesthesia is ability to puncture the skin without producing any sensation; another is relaxation of the muscles.

There are three varieties of anesthesia: (1) Incomplete anesthesia, the result mostly of improper injection or too small dosage. At first the author completed such cases by means of chloroform, but more recently the injection is repeated with good results. This has been done in three cases. Professor Jonescu found it necessary in one case to make three injections in order to produce anesthesia. (2) Complete anesthesia. The patient is absolutely indifferent. He is operated upon while he talks and jokes with those around him. This is usually the case when the operator is accustomed to the method. (3) Excessive anesthesia. The anesthesia is too strong, too

wide-spread, and loses its regional character. The sphincter ani relaxes with resulting incontinence, breathing is superficial and difficult, the face pale and anxious. The normal condition is easily restored by injections of caffeine and oil of camphor and artificial respiration. Occasionally there are such after-effects as mild headache, epigastric and lumbar pains, slight dizziness, and rarely vomiting.

In favorable cases, and these are in the majority, spinal anesthesia with stovaine and cocaine, from the point of view of the ease and completeness with which the operation can be carried out, is so satisfactory that the minor objections to it may be overlooked; operations upon the anus, perineum, and vagina are very easily done on account of the complete relaxation of the muscles. On account of its vasoconstrictor influence the number of hemostatic forceps is greatly reduced. The patient can assist the operator by restraining a cough or assuming a suitable position. The author's assistant, Dr. Taicu, operated upon himself for inguinal hernia, thus showing that complete consciousness is retained. The author uses this form of anesthesia more and more in all ages. There are only two strong contraindications: septicemia, in which it is feared that a localization in the meninges may be brought about, and a condition in which the patient is *in extremis*, because in such a case the death of the patient, should it occur, might be unjustly charged against the anesthetic.

THE ABDOMINAL INCISION—THE REMOVAL OF THE WEDGE OF SKIN AND FAT TO FACILITATE INTRA-ABDOMINAL OPERATION.

KELLY (*Annals of Surgery*, March, 1911) after calling attention to the difficulties of intra-abdominal operation in stout patients, states that he has been able to obviate this difficulty in most instances by a large excision of skin and fat from the overweighted abdominal wall, removing a skin section either in the transverse or in a vertical direction corresponding to or at right angles with the incision, about 8 or 10 inches in length by 3 or 4 inches in width. This does away with the thickness of the wall down to the fascia, while from the fascia inward the difference between different abdomens is not great. If the patient is excessively fat, one will then naturally do a regular lipectomy operation, such as the author has described before. This serves the same purpose and is done the same as the lesser procedure here described. Kelly emphasizes the value of removing wedges of skin and fat in patients who are not troubled with obesity, but simply and solely for getting rid of a part of the thickness of the abdominal wall and making the field of the operation more accessible.

An oval or an elliptical excision is made, cutting right down to the strong fascia overlying the rectus and oblique muscles. All bleeding vessels ought to be carefully tied. It is a good plan to slope the edges of the incision a little inward. When this piece of skin and fat is removed the operator then finds it much easier to open the abdominal wall and operate than in a similar case in which he has to retract this embarrassing mass of tissue as well.

Kelly closes such a wound with a fine catgut suture, catching a distinct layer of fascia about the middle of the fat, silkworm-gut sutures uniting both skin and fat.

EXPERIENCES WITH APPENDICITIS AT THE GOTTINGEN CLINIC.

FROMME (*Deutsche Zeitschrift für Chirurgie*, Bd. 108, Heften 5-6) states that from 1896 to 1910 there were treated in Braun's clinic 647 cases of appendicitis, some of which were seen in more than one attack, making 692 cases altogether. Of these, 60 per cent were in males and 40 per cent in females. There were 59 deaths, a mortality of 9 per cent. As regards age, 65 per cent of the cases occurred between ten and thirty years. Very few patients were under ten years, and only one was over seventy years.

Early operation was done in 76 cases. Of these, in 20 there was diffuse peritonitis with eight deaths, in seven there was en-

capsulated abscess with one death, in 27 there was serous or seropurulent exudate with no deaths, in 22 there was no exudate and no deaths. There were treated during the intermediate stage of the disease—that is, from the third to the fifth day—52 cases. Of these three died. There were operated upon after the fifteenth day of the disease 90 cases; of these 12 died. The interval operation was done in 378 cases, of which only three died. Death in the first of these cases was due to postoperative ileus, caused by a small piece of gauze left behind at operation; in the second to an unknown cause, as no autopsy was allowed; and in the third to infection from an abscess which was still present at operation. Tuberculosis was found in six of the interval cases. Carcinoma was found in only one case.

During the period covered by this report 68 cases of appendicitis were treated without operation. In five of these cases diagnosis could not be established with certainty; in eight operation was refused; and in 54 conservative treatment was instituted with a view to an interval operation. The author is of the opinion that the best method of treatment of appendicitis is the early operation. This is to be unqualifiedly advised in every patient taken with symptoms of acute appendicitis, since there is no method of investigation at present available by means of which a definite prognosis can be made in appendicitis; and, further, early operation affords the only means of guarding against abscess and peritonitis. Operation should be done in the intermediate stage only in those cases in which there is a vital indication for operation; in all other cases seen in this stage one should await the definite development of an abscess or watch the case through to the point where it becomes an interval case and then operate. In all intermediary operations the appendix should be removed, as is done in cases of diffuse peritonitis. When operation is done after an abscess has formed it is not necessary to search out and remove the appendix, for a simple incision for removal of the pus is all that is required. A ventral hernia can almost always be avoided in these cases by suturing the incision up to the point where the drain is inserted.

In patients in whom an abscess has been drained it is not necessary to advise an interval operation for removal of the appendix, for recurrence is rare, but the patient should be cautioned to submit to operation at the very first sign of recurrence of appendicitis. As recurrence is common in cases in which abscess does not form, all such cases should be advised to have an interval operation. The interval operation can be done in mild cases as soon as the symptoms subside; in severe cases after four to six weeks. When the appendix is the cause of peritonitis it should always be removed. Irrigation in peritonitis with free exudate marks a distinct progress in treatment.

OPERATIVE TREATMENT OF WOUNDS OF THE HEART.

BREWSTER and ROBINSON (*Annals of Surgery*, March, 1911) quote Grisogono's statistics and note with some surprise that of the total of 177 heart injuries only 24 were produced by bullets. In the tabulation of cases the bullets usually wounded both walls of the ventricles. The knife wounded but a single wall. They conclude their study by calling attention to the usual complicating pleural or lung involvement, and hold that operative rather than expectant treatment is indicated in the large proportion of cases. They reject osteoplastic flaps, and prefer intercostal section with or without subsequent division of ribs; they also advise in case of large wounds permitting of violent hemorrhage at the time of suture, and interrupted manual compression of the superior and inferior cavæ.

Differential pressure with apparatus is by no means a *sine qua non* in all operations for wound of the heart, although it must be regarded as a valuable agent to control the respiratory function, to regulate the heart-beat, and to reinflate the lung at the end of the operation.

Air-tight closure of the pleural cavity

with reinflation of the lung should be employed when possible; the intercostal incision followed by a pericostal stitch is a successful method of securing tight closure.

Drainage of the pericardium is unnecessary.

DAMAGE TO THE KIDNEY BY OPERATION.

MOORE and CORBETT (*Annals of Surgery*, March, 1911) on the basis of animal experimentation, conclude that an operation on the kidney always destroys some kidney substance; that the section of the kidney always does less harm than the suturing necessary to control the hemorrhage. Suture of the capsule alone is not sufficient and is therefore dangerous.

Mattress sutures destroy a great deal of the kidney substance, and the enlargement of the unoperated kidney after a short time is due to congestion from overwork and not to increased kidney substance, showing that the sum total of kidney substance is reduced by an operation.

The destruction of the kidney substance extends far beyond the field of operation.

The functional activity of the operated kidney is somewhat reduced, and this resembles the finding in a contracted kidney due to other causes.

Interrupted sutures transfixing the kidney at the pyramidal line and tied around the body of the kidney do the least damage, and this is therefore the method of suture to be recommended.

ANESTHESIA BY MEANS OF INTRAVENOUS INJECTION OF HEDONAL.

JEREMITSCH (*Deutsche Zeitschrift für Chirurgie*, Bd. 108, Heften 5-6) reports upon the results of a pharmacological as well as clinical study of the use of hedonal given intravenously with a view to the production of surgical anesthesia. The first attempt at intravenous anesthesia was that of Flourens, who injected ether into the crural artery in dogs. Subsequently Ore injected chloral into the veins of animals, and followed this by its use in 53 human beings, with favorable results in 51 cases. Later as a result of the investigations of Claude-Bernard this method was abandoned. No better results were obtained by Burckhardt by the intravenous injection of chloroform and ether. Pharmocologic experiments made by the author with hedonal in Krawkoff's laboratory have shown that a 0.75-per-cent solution of hedonal in physiologic salt solution injected into the veins will produce a lasting narcosis in animals without unfavorable results. The injection may be combined with the administration of hedonal by mouth. After demonstrating the satisfactory results in animals this substance was used in human beings in the clinic of Fedoroff.

The first case was that of a man twenty-three years of age, who suffered from a retroperitoneal sarcoma. The patient was afflicted with sleeplessness, which could not be overcome with veronal, trional, or sulphonal, and the pain was so great as to require several doses of morphine a day. To this patient was administered intravenously 200 Cc. of a one-per-cent solution of hedonal with 5 per cent urethan. No sleep was produced, but from the beginning of the injection a condition of sleepiness was brought about. The pulse-rate was somewhat increased, but the strength of the heart action was unchanged. Later the patient felt some beating in the head, but the next day felt as usual. He then requested a larger dose, and a little over twice the previous dose was given. The result of this is not stated by the author.

In the next instance this method of anesthesia was used with good results for the amputation of a foot. As it was demonstrated that satisfactory anesthesia could be produced in this way without postoperative complications, such as vomiting, headache, and changes in the urine, the method was adopted and used for different operations, both in clinical and private practice, to the number of 65. Operations were performed upon all parts of the body, including such operations as resection of the root of the trigeminal nerve, resection of the kidney, resection of the intestine, resection of the

rectum, amputation of the thigh. The longest operation was two hours and fifty-two minutes and the briefest thirteen minutes.

In only two cases was motor unrest observed. Sometimes at the beginning of the injection, if it is made too rapidly, there is brief suspension of respiration, but no cyanosis or contraction of the pupils, and respiration is reëstablished by lifting the jaw, pressing upon the chest, or making the incision. In several cases at the beginning there was increase in the pulse-rate of 10 to 30 per minute, but on the establishment of narcosis the pulse returned to normal. In almost every case the tension and volume of the pulse were increased. Sleep gradually comes on in five to eight minutes and the reflexes are abolished. The return of the reflexes varies in different individuals and is not dependent upon the quantity injected. In several cases sensation returned in two to three minutes. As soon as the pain reflex returns a second injection must be made through the same opening as the first. Care must be taken to avoid the production of a blood-clot at the site of injection; this is best guarded against by injecting the solution toward the periphery, having previously ligated the vein proximally. After simple intravenous injection the patient often awakes when the dressing is put on, but, if it is accompanied by a dose by the mouth or rectum, sleep may last as long as seventeen hours. Upon awakening the patient may feel chilly and the pulse is a little hurried. Usually the patient awakes in a restful state. No complications were observed at the site of the wound. Patients who had been previously narcotized in other ways expressed a preference for hedonal. This method is well borne in arteriosclerosis and myocarditis, for blood-pressure is not raised. At the start of the anesthesia the blood-pressure is somewhat lowered, but soon again rises to normal.

Bad results were experienced in two cases. In one of these the vein was very small and the injection was accomplished very slowly. The patient did not sleep and cried out with pain during the operation. and was very much excited; the operation was completed under chloroform. In the second case the injection was made into the saphena vein, but after twenty-four minutes and the injection of 850 Cc. of solution there was no narcosis, so operation was done under chloroform. It is evident that injection into the lower extremity requires more solution.

THE FUNCTIONS OF THE GREAT OMENTUM.

RUBIN (*Surgery, Gynecology and Obstetrics,* February, 1911) has contributed a surgical consideration of this subject which he concludes as follows:

The omentum has no spontaneous motility. The displacements of the omentum may be explained by: (*a*) intestinal peristalsis; (*b*) intra-abdominal tension; (*c*) the static condition of the stomach and colon and of the small intestine; (*d*) the anatomical relationship of the omentum to the gall-bladder and spleen.

The omentum has no demonstrable "chemotaxis." The amount of intraperitoneal fluid plus the amount of gas contained in the large intestine accounts for this apparent intelligent retreat of the omentum from virulent infective processes. In addition the suction action of the diaphragm under changed conditions of intra-abdominal tension explains the apparent upward "chemotaxis" of the omentum in inflammatory lesions of the upper abdomen.

The omentum has no intelligent and spontaneous protective rôle. Such protection as it apparently displays is simply due to its properties as peritoneum, and not as a superior organ with definite functions.

It cannot restore vitality to necrotic organs, nor vascular supply to those deprived of their circulation. The end product of an adhesion between the omentum and a foreign body is the destruction of the foreign body; between the omentum and any other abdominal viscus is scar tissue.

The omentum does not invariably spontaneously repair defects in hollow or solid viscera; it does this imperfectly in man.

Experimentally when the rent is not too large the omentum seems to occlude it and prevent leakage from the intestine. In perforated appendicitis, for instance, while the omentum is present in a great number of cases at the seat of the perforation, peritonitis, due to leakage, nevertheless frequently occurs.

The usefulness of the omentum in inflammatory lesions of the abdomen depends upon (*a*) its power to form adhesions which isolate and render innocuous toxic products; (*b*) to its power of absorbing and eliminating toxic products or destroying them by virtue of its phagocytic elements. But when contrasted with the sequelæ, intestinal obstruction, pain, etc., its beneficence is overbalanced.

The chief functions of the omentum are those of any other mesentery, namely: (*a*) the fixation of viscera; (*b*) vascular supply.

When the omentum is found adherent to an intra-abdominal tumor the probabilities are that the mass is inflammatory, and not neoplastic. If the omentum is adherent to a neoplasm, the tumor invariably has undergone inflammatory changes.

In exploratory gall-bladder operations it is well to remember that an "adhesion" between this viscus and the omentum does not necessarily mean inflammation. The adhesion may be a normal mesentery of the gall-bladder, contributed by the omentum. Care should be exercised, therefore, in the examination of the adhesion before it is unnecessarily separated, and before the gall-bladder is removed.

The best method of preventing adhesions between abdominal incision and omentum consists in the application of a continuous peritoneal catgut suture. Areas of the abdominal cavity uncovered by peritoneum lead almost invariably to adhesion formation.

The omentum is capable of absorbing large quantities of fluid and particles in suspension. Larger particles are attached in a purely mechanical way. The latter is controlled by the action of the diaphragm and intestinal peristalsis.

Too much should not be expected from grafts of the omentum. A detached piece of omentum rapidly becomes necrotic, and is useless. Only intact portions of the omentum produce serviceable adhesions.

REVIEWS.

MODERN OTOLOGY. By John F. Barnhill, M.D., and Ernest de W. Wales, B.S., M.D. Second Edition, Revised. Philadelphia: W. B. Saunders Company, 1911. Price $5.50.

The revision after three years of this excellent treatise again gives us a text-book justifying its title of "modern." Notable before for its fine illustrations and its direct, clear text, there have been additions to both that are distinct gains; while some eliminations have partially made room for the ten more cuts and nearly 30 pages of new text. Although some sixty of the cuts are of instruments, many of them are held as when in use and their actual employment is portrayed. Few of them could be spared. The anatomical presentation is exceptionally good—surpassed, if at all, only by Politzer's; and the execution of the drawings and photographs is generally fine. The pathological treasures of J. Orne Green's collection in the Harvard Museum have been admirably used, affording as instructive a view of the morbid as of the normal structures.

Notable changes from the first edition are first seen in the chapter on Hearing-tests, which embodies the recommendations and the formula of the International Committee reporting at the Budapest Congress, with explanations and illustrative cases. However desirable such uniformity of formula will undoubtedly be, this must receive rigid and comparative testing before it will obtain wide acceptance; but its de-

mand for greater thoroughness and accuracy on the part of all who undertake to make diagnostic examinations ought to be brought home to every aural practitioner.

The well-detailed description of "radical" tympano-mastoid exenteration is followed by some account of Heath's "conservative radical" procedure, which preserves what remains of drumhead and ossicles—essentially the Wolff operation of two decades ago. This receives rather theoretical commendation. Yet caries of the ossicles has so usually destroyed all usefulness of the larger ossicles before tympanic evisceration is justifiably done, and proper employment of intratympanic measures can so far save any hearing that is not hopelessly lost, that the claims for superior results have never appealed to the reviewer except as a reflection upon the "radical" as too often done. Neither operation should notably reduce the hearing unless unusually good before interference.

The intervention for suppuration of the labyrinth is described at length, but some typographical errors mar the new illustrations 257, b. and c., which, with slips in the text, confuse the delicate technique. The cupola of the cochlea in text and cut seems to be located at the promontory instead of at the pulley of the tensor tendon. Insisting, as Barnhill does, that such operations shall never be attempted on the living until repeatedly done on the cadaver and the operation of a skilled expert watched, these errors should be harmless.

In the section on the accidents and dangers of the radical operation, the claims of a very abnormal course of the facial nerve are accepted; and Be(h)rens' specimen is drawn with a completeness of demonstration which it lacked as studied by the reviewer. The styloid process jutting outward 40 degrees would be even more anomalous than the claimed course of the facial —in fact, showing an erroneous orientation of the specimen. Anomaly of the facial may occur, but it has not been as yet fully demonstrated even in the detached specimens; and the reviewer's measurement of the matter in a thousand temporal bones not separated from the skull makes it seem problematical. The rule should be rather more emphasized that the facial bands around the oval window, forming an arc of 75 degrees, then descends exactly vertically to emerge between the styloid and mastoid processes. As these two landmarks are usually open to exact location, there should be certainty as to the precise situation of the structure in almost every case; and the surgeon should put no trust in an assistant warning him of facial twitching, which may mean that the nerve is already damaged.

More is said than in the earlier edition of the surgical anastomosis of the paralyzed facial with the hypoglossal or spinal accessory; but in spite of accepting many of the claims put forth by various operators, the former view is maintained—"Complete restoration . . . has not yet been attained." Stress is rightly laid upon the possibility of late recovery under massage and strychnia; but more should be said of absorbent medication and of the simple pinching massage of the facial muscles, which the patient can carry out with ease at home during the four or more weeks before electricity becomes safe. The persistence of any suppuration should contraindicate any attempt at the operation of anastomosis.

The caloric and rotation tests of the static labyrinth are fairly presented, although with only a fraction of the stress laid on them in the Vienna school; in this and most respects a sane practical guide being furnished to the student, young or old, who seeks to be up to date in his otological practice. B. A. R.

MEDICAL DIAGNOSIS. By W. Mitchell Stevens, M.D., F.R.C.P. Illustrated. H. K. Lewis, London, 1910. Price 25s.

The appearance of this book in England some weeks before it arrived in this country has given us an opportunity of reading with much interest the various reviews of it which have appeared in British journals. Without an exception every review which we have seen has been favorable, and this

in itself is a tribute to the sterling qualities of the text, since the English are not given to praise unless it is well deserved. The book is too large a one for use by the average student of medicine, and the character of its text fits it more for the postgraduate, for the active practitioner, than for the man who is still preparing to take his degree. Although printed on thin paper it is, nevertheless, a somewhat bulky volume, covering almost 1600 pages, and therefore it is obvious that it is exhaustive, and that it has been the intention of the author to cover the whole realm of medical diagnosis. With this object in view we find on turning over its pages that after a discussion of the general problems underlying diagnosis, he proceeds to take up diagnosis as the average author of a text-book on the Practice of Medicine takes up his various themes, opening with the Infectious Diseases, and passing on to Animal Parasites, Intoxications, etc., in regular sequence. It is evident that Dr. Lewis writes from the standpoint of the man of experience rather than from the standpoint of a mere book student. The illustrations which he inserts are excellent, and while not as high in quality from an artistic standpoint or from the standpoint of execution as we are accustomed to in American books, they nevertheless are entirely adequate to serve their purpose.

THE ANATOMIC-HISTOLOGICAL PROCESSES OF BRIGHT'S DISEASE AND THEIR RELATION TO FUNCTIONAL CHANGES. By Horst Oertel. Illustrated. W. B. Saunders Co., Philadelphia, 1910.

This is a handsomely printed book of a little over 200 pages, embodying the Lectures delivered in the Russell Sage Institute of Pathology in New York during the winter of 1909. The book is dedicated to Dr. E. G. Janeway, recently deceased, one of the ablest clinicians that New York has seen during the last fifty years. To those who are interested in renal disease—and what physician is not?—the present book is well worth careful reading and study. After a historical introduction and a classification, a description is given of the Structure of the Normal Kidney and the Different Views which have been held as to its Function. The third, fourth, and fifth lectures are devoted to the Changes in the Kidney in Disease, the Changes in other Viscera, and Edema. The closing part of the volume deals with Notes and References, an Index of Names and Subjects, and with an Appendix giving a classification of Nephritis, and describing the Non-inflammatory Lesions of the Kidney which are occasionally, but wrongly, grouped as nephritis. One of the best parts of the volume is the excellent plates with which it is handsomely illustrated. These plates give unusually clear views of the microscopic and macroscopic changes which are found in the kidney in various forms of renal disease. Naturally the book does not deal with diagnosis, but we feel certain that the medical man who reads its pages, even hurriedly, will obtain a far better conception of the best modern views of diseases of the kidneys than can be obtained by any similar amount of reading elsewhere. Indeed, this is one of the few monographs which it will well repay the busy practitioner to carefully peruse.

MODERN DIAGNOSIS AND TREATMENT OF DISEASES OF CHILDREN. For Practitioners and Students of Medicine. By Herman B. Sheffield, M.D. Illustrated. The F. A. Davis Co., Philadelphia, 1911.

Although this book contains about 600 pages, it nevertheless attempts to cover a very wide field, since it discusses not only the medical but the surgical diseases of infancy and childhood, with special reference to clinical diagnosis and treatment. Altogether it contains 150 original half-tones or photo-engravings and smaller illustrations, some of which are in colors. The opening chapters deal with methods which should be employed in examining a child and with the prevention and control of children's diseases. These chapters are followed by others dealing with congenital malformations. The diseases of various portions of the body, such as the digestive apparatus, the circulatory system, and the

kidneys, are discussed. There is also a chapter upon the various communicable diseases, in which not only the so-called eruptive fevers but malaria, syphilis, and rheumatism are included, as well as diseases of the bones and joints. That some diseases of the bones and joints are without doubt due to infecting organisms is of course universally recognized, but it is scarcely fair to put all diseases of this character in this group. The book is not an exhaustive one, but fairly adequately covers the large field which we have described.

A Text-book of Medical Diagnosis. By James M. Anders, M.D., Ph.D., LL.D., and L. Napoleon Boston, A.M., M.D. The W. B. Saunders Co., Philadelphia, 1911. Price $7.50.

We have been long awaiting with interest the publication of this volume, which was expected a year or two ago. Evidently the authors have delayed it in order to make their preparation of the text most thorough. When we say that it covers nearly 1200 pages, it will be recognized that the authors have endeavored to be most exhaustive in their consideration of medical diagnosis. A few years ago practitioners were usually content with one large book dealing with the practice of medicine and desired a comparatively small book to aid them in diagnostic procedures, but within the last few years a number of large and exhaustive works have been published in this particular department of medicine. Both of the authors are well recognized in medical practice because of their experience and earnest endeavor to attain perfection in their work, and they have embodied in this volume the results of a very wide experience, which is coupled with a thorough examination and study of the literature of the subject. To those who wish an exhaustive work upon medical diagnosis this volume can be most cordially recommended.

Studies in Cardiac Pathology. By George W. Norris, M.D. Copiously Illustrated. W. B. Saunders Co., Philadelphia, 1911. Price $5.00.

Among the younger medical men of Philadelphia Dr. Norris has been known for several years as being an enthusiastic investigator along the lines covered in this volume. He was one of the first to take up with thoroughness the newer methods for the investigation of cardiac pathology, or morbid physiology, in distinction from morbid anatomy, and has made numerous contributions along these lines. He is well fitted to prepare a summary of the literature on cardiac pathology and to present the results of his own investigations. Almost every page contains references to the literature, and these references deal almost entirely with articles which have been published in American and foreign journals during the last few years. In other words, the book deals with modern cardiac pathology and does not attempt to go back of what might be called the period of our newer conceptions of heart disease. There are a great many full-page illustrations of pathological specimens which are unusually well executed and well defined. It must be understood, however, that although Dr. Norris has used so largely the modern instruments of precision, this volume does not deal so much with this branch of the subject as with the actual changes and morbid anatomy of the cardiac muscle and valves. The heavy paper, large type, and excellent illustrations combine together to produce what may be called an "edition de luxe."

A Text-book of Chemistry. For Students and Practitioners of Medicine, Pharmacy, and Dentistry. Second Edition, Rewritten and Enlarged. By Edward Curtis Hill, M.S., M.D. The F. A. Davis Co., Philadelphia, 1911.

As the title indicates this book is meant for students and practitioners, and its early pages are taken up with medical physics, chemistry, philosophy, and inorganic chemistry, in order that the undergraduate student may be properly instructed in fundamental departments. These chapters are followed by others upon the carbon compounds, analysis, incompatibility, sanitary chemistry, toxicology, physiological chemistry, and clinical chemistry. An appendix contains much information in a condensed form concerning the solubility of common drugs, manufacturing chemistry, ores,

rocks and minerals, and the composition of certain proprietary remedies.

The appearance of a second edition within a comparatively short time after the first one appeared testifies to the fact that the author has been successful in providing an immense amount of valuable information in a comparatively condensed space.

MEDICAL JURISPRUDENCE, FORENSIC MEDICINE, AND TOXICOLOGY. By R. A. Witthaus, A.M., M.D., and Tracy C. Becker, A.B., LL.B., with Collaborators. Second Edition, Volume IV. William Wood & Company, New York, 1911.

It has been so long since the earlier volumes of Witthaus and Becker on Medical Jurisprudence appeared that some of us probably forgot that the fourth volume was on the programme of the authors. In form it is, of course, identical with the preceding three volumes. The references to literature take up almost as much room as the actual text, the present volume being devoted to Toxicology, and therefore being more directly under the editorial supervision of Dr. Witthaus than of his legal colleague. There can be no doubt that no medical toxicologist and no lawyer who deals with medicolegal cases can afford to be without this set of volumes, which are the most adequate and complete of any that have been published in the English language. Furthermore, they are quite equal to if they do not surpass some of the Toxicologies published by our German confrères.

THE PRACTICE OF MEDICINE. By R. J. E. Scott, M.A., M.D. Illustrated. P. Blakiston's Sons & Co., Philadelphia, 1911. Price $2.50.

The present volume is one which has been known to medical students for many years as "Hughes' Practice of Medicine," having been originally compiled by the late Dr. Daniel E. Hughes, of Philadelphia. Dr. Scott is responsible for the revision and enlargement of the present tenth edition. The book is a small octavo covering nearly 900 pages, and is an excellent summary of this subject, containing also many prescriptions in the parts devoted to treatment. It does not profess to be an adequate substitute for the larger works upon Practice, but it is without doubt a most excellent summary for the student, being much more complete and thorough than the average quiz-compend. Written originally by one who quizzed students in this department for many years, and brought up to date by an editor who is well qualified for his work, it will certainly maintain the popularity of previous editions.

HOSPITAL MANAGEMENT. Edited by Charlotte A. Aikens. The W. B. Saunders Co., Philadelphia, 1911.

In a space of less than 500 pages a number of articles are contributed by various authors along the lines which are appropriate to the title which we have just given. The book opens with a consideration of the American Hospital Field, with Boards of Managers and their Responsibilities, with the Duties of Hospital Superintendents, and the Medical Service of a Hospital, this last chapter being contributed by Dr. Hurd, who has until recently been in charge of the Johns Hopkins Hospital. Other chapters follow upon the Furnishing of a Hospital and Hospital Bookkeeping, the Direction of the Kitchen, the Engineer's Department, the Laundry, the Surgical Department, Out-patient Department and Nurses' Training School. Hospital management has within the last few years developed into such an accurate field of human endeavor that this book will undoubtedly find a useful place in medical literature.

NEW AND NON-OFFICIAL REMEDIES: 1911. The American Medical Association, Chicago, 1911.

This small book contains a description of the medicinal substances which prior to January 1, 1911, have been examined by the Council on Pharmacy and Chemistry of the American Medical Association which appeared to comply with the rules of the Council, and which therefore were accepted for publication in this volume. All the material which it contains has already been published in a disjointed form in the pages of the *Journal of the American Medical Association,* but we think that practitioners will be glad to have this information brought together under one cover.

There is not only an index of substances but also an index of manufacturers, with the names of those of their products which are included in the book.

THE PRACTICAL MEDICINE SERIES. General Editors: G. P. Head, M.D., and Charles L. Mix, A.M., M.D. Volume I, General Medicine, Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, A.M., M.D. The Year Book Publishers, Chicago, 1911. Price $1.50.

As our readers probably know, the practical Medicine Series appears in ten volumes through the year, various editors in special departments preparing each volume. The names of Billings and Salisbury are sufficiently well known and well recognized as authorities in this field to give us an assurance that the work in this, the first, volume has been well done.

A HANDBOOK OF ELECTRO-THERAPEUTICS. By William Dugan, M.D. Illustrated. The F. A. Davis Co., Philadelphia, 1910.

This is a small book designed for students and for practitioners who do not wish to purchase an exhaustive monograph upon this subject. It is copiously illustrated, and the effort of the author has been to bring before the reader the methods which he has found in his personal experience to be most useful.

PRACTICAL CYSTOSCOPY AND THE DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEYS AND URINARY BLADDER. By Paul M. Pilcher, M.D. Illustrated. W. B. Saunders Company, Philadelphia and London, 1911.

This excellent text-book embodies practically all that is known of the cystoscope in its applications both diagnostic and therapeutic. It is a timely publication and fills a need long felt by those desirous of perfecting themselves in the use of this instrument, since it gives in detail only possible of expression by one of large experience the newer technique of examination. Pilcher states that he has put down nothing that he has not personally observed or tested.

In the section devoted to the uses of the cystoscope the technique is considered in detail, beginning with a careful consideration of the types and construction favored by European and American manufacturers. There are further chapters dealing with the method of conducting an examination, observation and orientation of the bladder, and the technique of ureter catheterism.

Part II is devoted to the Diseased Bladder, and is diagnostically descriptive both in text and in illustration.

Part III, Diseases of the Prostate and the Diagnostic Service which can be Rendered by the Cystoscope. Diseases of the Ureter are considered in Part IV. There follow sections devoted to functional activity of the kidneys, with detailed description of the tests and a brief discussion of diseases of the kidneys, including tumors.

Finally, there is a small section devoted to the therapeutic uses of the cystoscope, including the method of employing it in topical application to the bladder, and its use in carrying on intravesical surgical procedures under direct vision, including the employment of the high-frequency spark, the enlarging of ureteral openings, the dilating of strictures, and lavage and drainage of the renal pelvis.

COLLECTED PAPERS BY THE STAFF OF ST. MARY'S HOSPITAL MAYO CLINIC. Rochester, Minnesota, 1905-1909. W. B. Saunders Co., Philadelphia and London, 1911.

In this book of 638 pages, which, the authors state, has been published as an indexed collection of reprints, each article constitutes a distinct contribution to surgical knowledge, indeed the latest and most authoritative word therein. William J. Mayo, Charles Mayo, and Judd have contributed the greatest number of articles. Graham, Beckman, MacCarty, Wilson, and others publish contributions based on the extraordinarily rich clinical material made available by the genius of the Mayos. About half of the work is devoted to Surgical Affections of the Alimentary Canal, whilst, as might be expected, the ductless glands in their surgical relations are very thoroughly considered.

These Collected Papers are now consulted and their teachings applied by the great majority of operating surgeons throughout the world.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

The most notable event of the past month has been the introduction of the Chancellor of the Exchequer's Bill for National Insurance against Sickness and Unemployment. The magnitude of the measure can scarcely be grasped at the first glance, for it includes in its scope nearly fifteen million workers, men and women, boys and girls. The bill has met with a most friendly reception from people holding all shades of opinion, and though nearly every one is agreed in praising the intention of the scheme, there is sure to be a great deal of discussion and criticism on the actual working details of its administration. The bill is divided into two parts: the first part provides insurance against sickness and disablement; the second part provides insurance against unemployment. The sickness insurance is compulsory on all who earn weekly wages or earn salaries under the income tax level of three pounds a week. There are a few exceptions to this rule, such as the army and navy, crown servants, and municipal employees, who will have separate arrangements. The compulsory scheme will thus be seen to cover the whole range of ordinary industry. Men will have to contribute 4d. a week to the fund; to this will be added 3d. a week from the employer and 2d. a week from the state. Women workers will pay 3d. a week. A voluntary branch has been arranged for persons who are their own employers, such as a blacksmith or a bootblack. These persons may or may not join the scheme as they like. If they join within a year they will pay 7d. a week —that is, they will pay a sum the equal of what under the compulsory branch of the scheme is to be paid by the workman and employer combined. It is estimated that about £20,000,000 will be raised by the payments of workers and employers. The benefits which accrue under this scheme include medical relief, maternity allowances, and disablement pensions.

At the present time the friendly societies pay their doctors about 4s. per member per annum. This allowance is obviously not sufficient to enable the doctor to dispense the more costly drugs or to treat the more difficult cases. It is now proposed to give the doctor a really adequate payment, and to leave the dispensing of the drugs to the chemist; and the cost of these medicines will be paid for separately by the fund. Thus for the first time the poor will be able to have the more costly of necessary medicines. This portion of the bill has met with rather a mixed reception from the medical profession. It is obvious that such wholesale insurance will have a profound effect on all middle- and working-class practices, but at present it is very difficult to foresee how far these changes will go. There has already been an outcry from doctors who work practices just above the club line, as they declare that the good-will of practices has been destroyed by the bill; on the other hand, doctors whose practices consist mainly of club patients hope that their services will be better paid in the future. The maternity allowance of 30s. will be paid on condition that the mother does not return to work for four weeks after childbirth. It will be paid not only to those mothers who, as wage-earners, are within the fund, but also to the wives of members. The allowance will apply to illegitimate as well as to legitimate births, provided that the mother is an insured member.

The allowances for sickness will be: for men, 10s. a week for the first three months, and 5s. a week for the next three months; for women, 7s. 6d. a week for the first three months and 5s. a week for the next three months. Disablement pensions will be paid at the rate of 5s. a week until the age of seventy, when the old age pension comes into force. These pensions will not be payable until two years of membership have elapsed. As consumption accounts for such a large mass of the longer illnesses, a determined attempt will be made to stamp out

the disease. There will be therefore a loan of one and a half millions a year for the building of sanatoria, and a grant will also be made for maintenance.

The administration of this great measure will be largely carried out by the agency of the friendly societies, as they already possess the necessary machinery, and are managed by the working classes themselves. In the case of workmen who are refused as unsuitable by the friendly societies, there will be arrangements for depositing through the Post Office. The attitude of the friendly societies toward the scheme may be described as non-committal, as they fear they may lose some of their independence. The second part of the bill for insurance against unemployment only applies to certain selected trades, and is not so far reaching in its proposals.

The war against tuberculosis goes on ceaselessly, and one of the most promising methods of attack lies in the establishment of antituberculosis dispensaries. Several of these dispensaries have now been established in the various boroughs of London, and they follow the system initiated by Dr. R. W. Philip, of Edinburgh, who started a small antituberculosis dispensary in 1887. The great aim of the antituberculosis dispensary is prevention. It endeavors to discover, to control, and to treat the great mass of unknown tuberculosis at present existing in our great centers. The dispensary acts as a central bureau for the collection and dissemination of information regarding tuberculosis in its district. Patients go there, and after examination and diagnosis are treated on general and specific lines. But the great value of the dispensaries as an educative factor is that the doctor and dispensary nurse visit the homes of the people and show them the simple measures necessary to carry out the open-air treatment. Then comes the examination of all "contacts." Every member of a family from which one has gone to the dispensary is examined by the doctor, and in this way the early and curable cases are discovered. The educative value of the open-air demonstrations must become of enormous importance as time goes on; when the people have learnt the value of sunlight and fresh air there will be an end of dark rooms and perennially closed windows. From the dispensary selected cases are sent to sanatoria for cure. The dispensary is at present the one organization as far as the poorer classes are concerned which can select these early cases.

There is no doubt that many thousands of pounds are wasted annually in sending unsuitable cases to sanatoria for treatment. Another great point in favor of the dispensary principle is that a very large number of cases can be treated in their own homes, and this fact becomes of vital importance when the breadwinner of the family is affected, for a man cannot be taken away from his work unless provision is made for his wife and family. The dispensaries also cater for the children by the provision of open-air schools, not merely for tuberculous children, but also for all those who present the stigmata of tuberculosis.

One of the most successful of hospital festival dinners has been that recently organized in aid of the King's College Hospital Removal Fund. The dinner was on rather novel lines, as many ladies interested in the hospital acted as hostesses, and each hostess was responsible for filling her table with guests. The Earl of Selborne was in the chair, and in response to his appeal for funds the sum of over £58,000 was subscribed. In this country, at any rate, this constitutes a record for an appeal dinner, and the liberal sum subscribed will be a great help toward the building of what will ultimately become one of the finest hospitals in the metropolis. More is still required to finish the hospital and build the medical school.

PARIS LETTER.

BY M. A. TUCKER, M.D.

The question of establishing a "Conseil de l'ordre Médical" on the same footing and basis as the existing Council of the French Bar has been widely discussed of

late. It is an undeniable fact that the professional rules governing at the present time the French medical world are obsolete, when not totally absurd, and the necessity of forming a body of men empowered to survey and defend the interests of the doctoral corporation is undoubtedly as urgent and needful as it is for the advocates, even more so when it is considered that the legal gentlemen have always the benefit of a wide and permanent publicity by the very nature of their functions. Their pleadings are made in open courts in presence of the public, their names are circulated all around and advertised in the newspapers, generally with praising adjectives, they are referred to as "my learned and distinguished brother," whilst a medical man is condemned to silence and oblivion, however great his science or his skill may be, the insurmountable barrier called "secret professionnel" being always opposed to his advance.

If there were a Medical Order, the evil would be partially obviated. The list of its members could be made known to the great advantage of all concerned, especially when it is understood that, to be admitted in such a society, other guarantees than parchments, titles, or certificates would be required. When conflicts arise between barristers and clients or between two parties of the same profession, the Council of the Order is fully qualified to determine and judge responsibilities, whilst if any complaint has to be formulated against a medical gentleman, he is quickly traduced before the courts and tribunals of the land, and he has to incur great risks and heavy expert's costs to disentangle himself of his trouble. This is why a body of competent and highly conscientious men is absolutely necessary to vindicate against foreign intervention the merits and the interests of the profession, for upon the slightest charge of neglect preferred against him the medical man has to submit to the searching investigations and cross-examinations not of his peers but on the part of the lawyer.

But this is only one of the numerous sides of the question, and if it relates to the direct interests of the doctors, it is of equal importance for the public, who have a right to be protected against all the quacks and adventurers who live within the confines of the medical domain. The public would assuredly contemplate with legitimate satisfaction the formation, in our ranks, of a strict committee of discipline which could extend its vigilance and jurisdiction over all the members of the profession, and be at the same time enabled to itself rise against the innumerable encroachments and other grievances which are so noxious upon our grounds. A great number of public nuisances could by these means be brought to an end. Is it tolerable, for instance, that whilst a doctor *in medicine* is rigorously prohibited from preparing or even delivering a drug or a draught of any description, even in urgent need, a chemist too often takes the liberty to execute one single prescription over and over again, regardless of the danger to which the patient is thus exposed and also of the interests of the doctors? In so doing the chemist is clearly and deliberately infringing the law in putting himself in lieu and place of the doctor. He has no right nor business to execute a prescription more than once. Individually the gentlemen of the profession are powerless to cope with the abuse, but as a body the matter would soon and adequately be dealt with.

The medical career is characterized by hardships and difficulties which are far from being remunerated or compensated as they ought to be. It is an arduous task for the beginner to gain a clientele, and the creation of the Order of Medical Doctors of the Seine will to a great extent contribute in clearing the path on that side. The general public will be at liberty to choose between the members of the profession who are admitted and those who are left out of it.

All things considered, it is to be hoped that such organization will as early as possible be put in good array and in proper working order.